BIBLIOGRAPHY

In Theory and Practice

with a Chapter on Copyright

Third Revised and Enlarged Edition

M. L. Chakraborti

WORLD PRESS

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THEORY AND PRACTICE

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To
The Sacred Memory
of
My Father
Late Priyanath Chakraborti

PREFACE TO THE THIRD EDITION

The book has been out of print for more than one year. I could not undertake the work of revision so long on account of various other preoccupations and hence I owe my readers an apology for this inordinate delay.

In this edition a general revision has been made and new matter added where this was felt to be necessary. I have added a new chapter on Copyright which, I hope, will be of value to librarians, scholars, bibliographers and Library Science students.

In the general work of revision I wish to acknowledge the help I have received from many reviewers, bibliographic scholars, librarians and library science teachers of various universities.

Lastly, I take this opportunity to express my gratitude to Shri Sripati Bhattacharya, Managing Director, The World Press Private Ltd., but for whose persistent encouragement I would have perhaps never stepped into the realm of writing.

Department of Library and   M. L. CHAKRABORTI
Information Science,
Jadavpur University,
December 10, 1986

PREFACE TO THE FIRST EDITION

Since I started teaching Library Science in 1956, I was for a long time thinking of writing a text-book on Bibliography. Both as a student and a teacher of Bibliography, I have realised the difficulties of the students of Library Science, especially in India

in collecting materials on the subject. A suitable text-book on Bibliography covering its theoretical and practical sides as also its various ramifications—physical and historical, analytical and systematic—has been for long the crying need of the students of the subject in India. There is indeed no comprehensive book by any Indian author, in the field, so far. Books have of course been written on the subject by eminent foreign authors and specialists but none of them is comprehensive, most of them being either sketchy or restricted to a particular branch of the subject. Moreover, almost all of them are conspicuously silent on Indian topics and consequently students of Library Science in India and also foreign students seeking information on Indian topics have to hunt for relevant material from many scattered sources. I have, therefore, tried my best to make the book as comprehensive as possible by including in its scope not only the general conspectus of the subject but also its various branches. I have also tried my best to collect materials on Indian topics from widely scattered sources and to present them in as simple and plain a style as possible for the convenience of readers at all levels. I have exhaustively dealt with the theory of Bibliography in the Introductory chapter, physical and historical bibliography in the chapters from 2 to 8, analytical bibliography in the chapters from 9 to 12 and systematic bibliography in chapters 13 and 14 in which I have discussed not only the principles and methods of arrangement but also shown their practical application. In the concluding chapter I have discussed the need of Bibliographic organisation and control, methods of such organisation and bibliographical services now available both nationally and internationally. I have thus tried to give the book both a theoretical and a practical bias so that this single volume may serve at once as a compendium of theory and a practical guide not only for students of Library Science and future librarians but also for those already in the profession. Some of the chapters in the book, I think, will also prove highly useful to students of Ancient Indian History and Culture and probably to students of literature also. I shall consider my labour amply rewarded if the book meets the needs of those for whom it is

intended. I shall gratefully accept suggestions for improvement and shall make necessary corrections and revisions in the later editions of the book.

The book, I must admit, makes no claim to originality of thought. Writing from the Indian standpoint, I am deeply indebted to many great Indologists and eminent bibliographers whose works I have freely consulted. The frequency with which the names of some authors occur in the text or in footnotes .will indicate my indebtedness to them. But the treatment in the main is entirely my own. The arrangement of topics in the book has been largely determined by their order in the syllabi for the B.Lib.Sc. and M.Lib.Sc. courses prescribed by different Indian Universities in one of which I have been teaching for nearly a decade. Though written primarily for the use of students, it is not a book of the sort that encourages superficial learning or cramming for I have tried to give in each chapter as comprehensive a view of each topic as possible. I have also inserted at the end of each chapter, a reading list for the guidance of those who may seek more information on the subject.

My first and deepest acknowledgement in this regard is to my revered teacher Sri B. S. Kesavan, Librarian, National Library, Calcutta to whose teaching alone I owe all my interest in Bibliography and who, in spite of his various preoccupations, has done me a great favour by writing a 'foreword' to this book. I also take this opportunity of expressing my gratitude to my friend and colleague D. A. K. Ohdedar, Chief Librarian, Jadavpur University, for his kindness in reading the manuscript and making numerous suggestions for improvement of the book. I am also indebted to my teachers Prof. S. K. Mukherjee, Head of the Department of Library Science, Calcutta University and to Prof. A. K. Mukherjee, formerly Head of the Department of Library Science, Jadavpur University for their constant encouragement and valued help. I am thankful also to my old pupil Sri Tapan Kumar Sengupta, Assistant Librarian, British Council, Calcutta for his kindly drawing a few sketches and designs, used in the book for purposes of illustration, to Sri Parijat Guha, Principal, School of Printing Technology, Calcutta for lending me two blocks used in the chapter

on Illustration, to Sri Sunil Behari Ghose, Assistant Editor, Indian National Bibliography for his kind help in bibliographic compilation, to Sri Sanat Kumar Gupta for his help in preparing the index and to my wife Sm. Renu Chakraborti for her assistance in correcting proofs. My thanks are finally due to Sri Prakash Chandra Bhattacharjee and Sri Sripati Bhattacharjee of the World Press Private Ltd. for the kind interest they have taken in piloting the book through the press.

Department of Library Science.   M. L. CHAKRABORTI
Jadavpur University, Calcutta-32
February 7, 1971

CONTENTS

CONTENTS

LIST OF ILLUSTRATIONS

FOREWORD

Shri Mukundalal Chakraborty, an old student of mine, has requested me to contribute a foreward to his very painstaking book on Bibliography. As he very rightly says, he pretends to no originality in the writing of this book, but he is satisfied if his labours in digesting the extensive literature on the subject within the compass of 330 pages or so, prove useful to the students of Bibliography in the various Universities of this country.

Early writing materials, paper, the evolution of writing, the Indian language scripts, block-books, the history and principles of printing and its development in Germany, France, England and India, book illustration covering the gamut of processes from wood-cut to collotype, book binding, a very brief account of paper-backs, the structure of the printed book, textual editing systematic bibliography with types and examples and a survey of bibliographical organisation—are all dealt with in this book. As is natural with any book outlining for itself an omnibus scope like this, the treatment of each aspect dealt with has to be somewhat brief to the point of being perfunctory. But it is to the credit of Shri Chakraborty lhat he has managed to compress quite a lot of information without being far too sketchy. As a primary guide to students of bibliography taking their first Degree in Librarianship, this effort of Shri Mukundalal Chakraborty is certainly most useful. Unlike many books, recently published in our field in this country, Shri Mukundalal Chakraborty has very faithfully acknowledged the sources he has been indebted to, and the rehearsal of titles at the end of every chapter contains a very judicious selection of material on which he has built his chapters. It is an honest book, not raising our sights too high by grandiloquent titles, as has been the case too frequently in books on Librarianship in this country, but fulfilling the promise of its preface adequately. He claims for it the status of a text-book for students and nothing more. It does not seek either to be the substance of the subject nor the foundations of ii. It is an honest-to-goodness text-book, and I think it succeeds well in its objective.

National Library,
   Calcutta.
The 27th February, 1971.

B. S. KESAVAN,
Librarian

CHAPTER I

THEORY AND HISTORY OF BIBLIOGRAPHY

"The acquisition of any knowledge whatever is always useful to the intellect, because it will be able to banish the useless things and retain those which are good. For nothing can be either loved or hated unless it is first known."—*Leonardo da Vinci.*

Bibliography—Its definition

The word 'bibliography' originated in Post-classical Greek times. It has been derived from the Greek word 'bibliographia' which means 'books and graphite to write.' Greek 'biblion' means book and 'graphein' means 'to write.' So etymologically bibliography means 'writing of books.' The Greek 'bibliographos' was thus a copyist of manuscripts and bibliography was, therefore, originally defined as 'the mechanical writing and transcription of books, but not their composition.' The term was expanded still further in later years to include composition as well. We can, however, trace the use of the word in this sense first in the second edition of Thomas Blount's *The Academic of Eloquence* published in 1656 and then in Edward Phillip's philological dictionary, *The New World of English Words* published in 1658. In the former a bibliographer has been defined as 'a writer of books' or 'a scrivener' that is, a drafter of documents and in the latter he has been called 'a copyist.' Now, this meaning of the term 'bibliography' was retained almost as late as the 18th century. Even in Fenning's *English Dictionary* published in 1761 a bibliographer has been defined as one who writes or copies books. There could also be no reasonable objection to the use of the term in that sense in the past, especially in the manuscript period when books were, by and large, copied or written in a non-authorial sense. It was only in the late eighteenth century when a new style of writing appeared in France "under the stimulus of the new wave of book collecting" as Roy Stokes has put it, that the term did not seem to suffice. That is why when the study of the theory of bibliography became very popular in France in the latter half of the 18th century, the term 'bibliography' took on a decidedly different significance. The meaning of the word 'bibliography' changed

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practically since 1763 from 'writing of books' to 'writing about books'. This new meaning, however, did not take long to gain acceptance in France and as a matter of course in countries like Germany and England. We find evidence of it in the definitions provided by such eminent bibliographers as Peignot, Ebert and Dibdin of France, Germany and England respectively. Peignot in his *Dictionnaire Raisonne' de Bibliologie* published in 1802-4 defined a bibliographer as 'one who made special study of knowledge of books, of literary history, and of all that related to the art of printing.' It was also in this sense that the great German bibliographer Ebert defined bibliography as 'the science that deals with literary productions.' Even Thomas Frognall Dibdin, the famous British bibliographer and author of the 19th century used the term in this sense in his writings. Ebert's definition was further modified later on as 'the science of books.' Since then to denote bibliography new and new terms came into use, but none of them resulted in any measure of clarity. For example, such terms as 'book arts,' 'book-lore,' 'bibliology,' 'bibliognosy,' 'lexicon,' 'thesaurus', 'repertorium,' 'calendar' etc. were freely used from time to time, but none of them could fully explain the meaning and purpose of bibliography. They only made confusion worse confounded. Of these terms again though the word 'bibliology' as preferred by Robert Southey is a much better and happier expression which very nearly corresponds with the purpose and content of the subject, it could not, however, gain universal recognition in spite of the authoritative support lent to it by such scholars as A. W. Pollard and Sir Walter Greg and consequently the term 'bibliography,' though incorrect and unfortunate, has come to stay.

Bibliography as the science of books has of course a wide connotation and in its broader sense it includes not only the technique of book-building, but also the history of books and their changing forms, the materials and methods of their construction, the history of their printing, binding, illustration, description and even listing. (It is really surprising that people to-day are inclined to restrict the province of bibliography to printed books only. But every body knows that a written book is as much a book as a printed one. To avoid ambiguity Sir Walter Greg has therefore, defined bibliography as 'the study of books as material objects.' He has further called it 'the science of the transmission of literary documents' and Hume has defined it as 'the science of the organisation of recorded

knowledge.' From what Dr. Greg has said we may, therefore, infer that bibliography is not then wholly divorced from the book's content. Dr. Greg has elaborated his point further when he has said, "Books are the material means by which literature is transmitted ; therefore bibliography, the study of books, is essentially the science of the transmission of literary documents".[1] It is truly in this sense that Copinger defined bibliography as "the grammar of literary investigation".[2] Bibliography in the words of V. W. Clapp, again is 'the systematic listing of the records of human communication'. Now all these definitions unmistakably suggest that a written book is as much a literary document or a record of knowledge or a record of human communication as a printed book. It is rather the written book which preceded the printed book by thousands of years in the march of civilisation. The phrase 'records of human communication' implies that the field of bibliography should not be restricted only to written and printed books, not even to graphic records and in spite of the restricting etymological meaning of the word it should cover records of human communication of all kinds 'whether they be in graphic, auditory, tactual, olfactory or gustatory form''. That is why Ebert applied the term 'bibliography' to both written and printed books. In a word, 'bibliography' now includes in its wide province not only the study of printed books but also that of manuscripts and palaeography. The word 'bibliography' has thus passed through various meanings and still covers too many activities to be very exact in definition. But in its narrow sense it is nothing but the study of 'the lists of books' or better still 'the study of the lists of literature' and it is in this sense that bibliography is ordinarily taken to-day. It is in the words of Besterman a list of books arranged according to some permanent principle. But a more satisfactory definition has been given by Louis Shores in recent times. It is, in his view, 'a list of written, printed or otherwise produced records of civilisation, which may include books, serials, pictures, maps, films, recordings, museum objects, manuscripts, and any other media of communication'. The lists of such records are themselves called bibiographies, the art of making them is called bibliography and the action of consulting them is termed bibliographing. The range of bibliography has thus been partly narrowed down for purely

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[1] 'Bibliography—a retrospect'. *Studies in Retrospect*. p. 115.
[3] Presidential Address of 1892 (Transactions of the Bibliographical Society. vol. 1. p. 34.)

practical purposes ; nevertheless both technique and history of book production are still an important part of it. In fact in Bibliography the physical description of books and the history of their production are so important that they tend to conceal its practical aspect namely the listing of books by author, subject, publisher, printer, date of Publication, editor etc. which has become so urgent in view of the enormous increase in the publication of books and periodical articles in the world to-day.

Nature of Bibliography

Now, bibliography may be complete or incomplete, general or universal, comprehensive and basic, selective and special, retrospective and current, national and trade etc. If it is general or universal, it attempts to include books published in every country and age and on all subjects. Such a project, it is needless to point out, is bound to fail since it is neither possible nor practicable to list and locate all records of civilisation that have appeared on different subjects and at different times and places and in different forms. It is only the catalogues of the great national libraries of the world that make the nearest approach to universal bibliographies. A bibliography is said to be comprehensive when it includes all kinds of reading materials that have appeared up to date on a subject. This undoubtedly gives a full view of the whole subject field. If it is a basic bibliography, it lists only the basic documents comprehensive up to a certain date, which form the kernel of a subject. A select bibliography, on the other hand, usually includes best books or books suited to a special purpose. If, however, it is a special bibliography it is limited to one author or a special subject or a highly specialised branch of learning. A retrospective bibliography, however, lists only the records of the past on a subject upto a certain date after which items published are not included. This can however, be supplemented currently, if it is so desired. If it is a current bibliography, it generally lists currently published literature. Trade bibliography and national bibliography normally belong to this variety. If it is a national bibliography, it is a record of books produced in the language of a country or of books produced in the country whatever be the languages. If it is a trade bibliography, it is published by the book trade to facilitate the sale or purchase of books.

But whatever be its nature bibliography as a subject has ever

been the very basis and foundation of librarianship. As bibliography is nothing but expert knowledge of the history of books, some knowledge of it is, therefore, essential for every librarian and every student of library science, nay, for every research worker.

Document and Document Bibliography

What is Document ?

In plain English document means a formal or official paper or something written or printed to be used as a record. But here we use the word in a slightly different sense. It means "embodied thought". Dr Ranganathan has defined it as "a record of work on paper or other material, fit for physical handling, transport across space and preservation through time."[1] This implies that documents may be written or printed or otherwise produced records and may include printed books and manuscripts, periodicals and articles of periodicals, films and microfilms, pictures and photographs, taped records and gramophone records, museum objects and others.

What is Document Bibliography ?

From the above definition of document it is quite evident that a 'document bibliography' should be "a list of embodied macro and/or micro ideas."[2] Dr Ranganathan calls the thought-content of a book its soul. A document bibliography, according to him, should therefore, be a list of macro and/or micro documents on a specialised subject or on any subject or on all subjects, the word 'macro' meaning big and 'micro' meaning small. That is to say, it should list books and/or periodicals, and/or articles in periodicals on a subject or on a special subject or on all subjects and it may be restricted in some other ways also. A comprehensive bibliography on any subject is, therefore, a document bibliography since it also contains both macro and micro documents. When a document bibliography is compiled to meet the needs of researchers, scholars and specialists it is called **Documentation List.** But whatever that may be, a documentation list on a subject is not much different from a comprehensive bibliography on that subject because the latter also includes documents of all kinds relevant to the subject.

[1] S. R. Ranganathan. Classified catalogue code with additional rules for dictionary catalogue code, 5th ed., Bombay, Asia Pub. House, 1964, p. 132.
[2] S. R. Ranganathan. Physical Bibliography for Librarians, 2nd ed., Bombay, Asia Pub. House, 1974, pp. 21-25.

Is bibliography a Science or an Art ?

Some of the definitions of bibliography, as we have seen, emphasise its close relationship to science and some its art bias. Hence some have called bibliography a science and some an art. The truth however, lies inbetween. It is neither absolutely a science nor absolutely an art, but a combination of the two. Science means method and art means presentation—effective presentation. Now in bibliography both art and science are dominating. 'It is both an art and a science'. The art is that of recording books ; the science, necessary to it, is that of the making of books and of their extant record, as Esdaile explains it. Moreover, every science in its presentation is an art and every art in its method is a science. Let us take some examples. Belles-lettres is purely an art, but in the study of Philology when it forms a field of research, it is certainly a science. Philosophy, likewise, constitutes a tie between art and science. So far as its two branches Logic and Ethics are concerned they are regarded as valid sciences and that is why they have been adopted as the basis of modern scientific classification of books. Even history so far as it deals with the source of knowledge for unfolding the past belongs to the realm of science. In the same way when the investigations and observations in the fields of various physical and natural sciences are put down in writing so that they may remain usable they are regarded as art. That is to say, when they appear in the form of collections of source materials, they fall within the province of art. Thus we see that every art is related to science and every science is related to art. Bibliography, likewise, is related to science in greater or less degree.

It is of course true that bibliography cannot be regarded as a science in the sense in which Physics or Chemistry is regarded as a science. The compilers of bibliography may flatter themselves by calling bibliography a science and themselves scientists by implication, but the scholars are very much opposed to the application of the term 'science' to it. Bibliography, according to them, is at best a technique or a skill, but not a science. The question naturally arises what actually is meant by science. Science is the dispassionate statement of facts, that is, the art of clear and logical statement of its findings. It means knowledge derived from observation and investigation, critically tested, systematised and brought under general principles which may be applied for treatment of future

events. Bibliography, however, falls far short of this high purpose, for even if it deals with the contents of the books, it has got nothing to do with general knowledge. Nevertheless as bibliography leads to knowledge in various subject fields, it cannot be denied that it has a great practical utility which is the chief motive of every science. Bibliography can certainly be regarded as a science in that sense. According to Schneider "Its chief claim to recognition as a science is that it does not represent a rule-of-thumb technique, but, rather, a well-ordered field". So far as their method and practical utility are concerned three sub-divisions of bibliography viz., bibliophilics, subject bibliography and classified arrangement of titles are regarded as science. The first one includes general rules and method of 'book research', the second one is a tool of individual sciences, and the third one namely the classified arrangement is strictly scientific in its method. Bibliography is thus 'a mixture consisting of science and its practical applications'.

In bibliography art and science are not only correlated but also interdependent. An effective tasteful arrangement of books is not possible without scientific examination of them. Now two questions may be asked in this context : (1) what is meant by scientific examination of books and (2) what is the purpose of such examination ? The answers to these questions will explain in their own way why bibliography should be treated as science. In preparing a bibliography on any subject the compiler is to collect certain information about each book on the subject and then to make entries of them all. But all the books do not supply the information required. To find them out the bibliographer is to make a scientific study of the books in all their aspects, that is, he is to examine the books as physical objects critically or better still analytically. This critical or analytical aspect of bibliography relates to science. Just as laboratory work in all sciences leads to classification, so also critical or analytical observation of books leads us to have the correct data about them, required for entry. Hence power of observation, inquisitiveness, ability to draw scientific conclusion by means of induction, capacity of logical examination and critical or analytic mind are the essential prerequisites of a good bibliographer and these certainly constitute the scientific approach of the subject. Hence in ascertaining the data required for entries in a bibliography critical examination of paper, typography, printing and binding of the books concerned

becomes imperative. Even in dating an undated book scientific examination of the book is basic. The process of paper-making, the quality of paper, the water-mark, the type-faces, the process of printing—all these are to be thoroughly studied in order ro detect their characteristics from the actual physical books. And no less important in this regard is the knowledge of the origin and development of the alphabets and the vagaries of calligraphy. In fact 'the more a bibliography inclines towards investigation of the history of printing and then into the history of literature, the more attention it pays to critical work, to selection, to consideration of the content, to investigation of the authenticity of works, to ascertaining the true author, and to determination of the place of the book in scholarly and intellectual history, the greater will be its claim to scientific character, comparable to the sciences it approximates"—Schneider. And so far bibliography is a science.

Bibliography is also an art and art, as has already been said, lies in presentation. Art is ingenuity or skill directed to the production of a work of art and hence it reflects the artist's personality. When all the information about individual books required for entry are collected, they should be assembled into a logical and useful arrangement for reference and study and must bear the stamp of the compiler's personality. So any kind of haphazard presentation or jumbling of bibliographical details will serve no useful purpose. Whether this arrangement should be by chronology or in the alphabetical order of the authors' names depends upon the nature of the subject. On the whole, the arrangement should be such as to enable the readers to make a truthful objective study of the whole field it covers. Bibliography is an art in that sense. Bibliography is also the art of knowing one's way in the field of knowledge and book production in a way. It is comparable to geography which makes its business to plot the known world. Just as the relief map of a country acquaints us with the outline of the land, so also bibliography maps out for us the field of knowledge so that we may know our way about without much waste of time.

Then again, the science of bibliography, or if you please, the art of bibliography, has several other aspects. Critical or analytical bibliography gradually leads one to historical bibliography which deals with the history of writing, printing, illumination and so on and this falls within the province of art. Thus we see that the scientific

aspect of the subject leads us to its artistic aspect. Bibliography thus admirably effects the complete integration of the two apparently opposed fields—art and science.

But it matters little whether bibliography is called an art or a science, a technique or a skill, because the value of bibliography does no depend upon its name or upon the rank or title offered to it. Call it by whatever name you please for 'What's in a name ?' as Shakespeare has said, 'that which we call a rose/By any other name would smell as sweet.' Hence whether we call bibliography an art or a science, that will hardly affect its value and importance. Its importance lies in the purpose it serves and the service it renders to scholars and researchers, to serious readers and even to laymen.

Enumerative or Systematic Bibliography

In modern times the word 'bibliography' is generally associated with two kinds of activities : the first is analytical or critical and the second systematic or enumerative. But the need of the former is keenly felt at times only for the latter because unless a bibliographer can find out the basic facts relating to the entries needed for preparing a bibliography, he cannot take up the latter work at all. For enumerative or systematic bibliography is nothing but the listing of books and other reading materials according to some useful system or reference scheme. Hence it consists in that part of the job of a bibliographer in which he assembles "the entries, simple or elaborate as the case may require, into logical and useful arrangement for reference and study". In the words of Hibberd "It begins with simple systematic compilation but proceeds by searching for new sources and by producing various classified lists".[1] He has, therefore, given to it a new name—reference bibliography. Its purpose is to disseminate information and guide the reader in his own chosen field. But how can a bibliographer assemble the entries unless he can find out the books and other analytical materials on his chosen subject ? Hence he requires to consult a general repertory by which he can locate the copy of a book if of course he knows of its existence. Now, the catalogues of the great national and other libraries of the world cover some of the ground but not all. It is the world bibliography or universal bibliography which may cover the entire field. But being often incomplete it cannot always provide a

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[1] Hibberd Lloyd. 'Physical and reference bibliography'. The Library : 5th series. Vol. XX (1965). pp. 124-134.

fuller and comprehensive picture of any subject field. At any rate, out of such general repertory or scattered repertories the bibliographer is to arrange,—arrange in a logical way, the titles of books and writings which deal with his chosen subject. Of course a large quantity of this work has already been done. W. P. Courtney's and Theodore Besterman's lists of bibliographies are all works in that direction. But a bibliographer may still hope to compile a bibliography of permanent value on any subject bearing the stamp of his originality. If it be, however, a bibliography of a special subject, it is sure to be useful some day or other. If there be no such exhaustive repertories, the bibliographer will have to hunt down through the scattered sources. If, however, he is to prepare a bibliography of a modern subject, he will have to "make an extensive search for books through catalogues and journals which publish reviews on the subject, through publishers' lists, through abstracting journals and through an enormous quantity of periodicals".

As regards arrangement the entries of books are commonly made either alphabetically by authors' names or by chronology. In the case of author bibliography the chronological arrangement is often better because it often shows the gradual development of the author's genius. But in the case of a special bibliography such arrangement often serves no useful purpose. In such cases entries should be made in such a way as "to make the entries illuminate each other by collocation". That is to say, entries should be made in such a way that they must show not only the relationship between them but also the gradual development of the subject. Esdaile has rightly said that "Every subject has a guiding principle and it is the business of the bibliographer at the outset to discover that principle and to make it the key to his arrangement". There are of course a number of classification schemes like the Dewey Decimal Classification by Melvil Dewey, Library of Congress Classification, Universal Decimal Classification, Subject Classification by J. D. Brown, Expansive Classification by C. A. Cutter, Bibliographic Classification by H. E. Bliss and lastly, the most brilliant scheme of Colon Classification by Dr. S. R. Ranganathan. Each of these schemes, of course, has its own merits ; still none of them seems adequate for the bibliography of a special subject because it is often seen that the subjects which are desired by the bibliographer to be closely related to his purpose are however, scattered. In a bibliography on history, for example, the relevant numbers in the schedule are mostly under political science.

Bibliography

- Analytical
  - Textual Bib.
  - Descriptive Bib.
    - Gen. or Univ. Bib.
    - Incunabula Bib.
    - Bib. of Anonymous & Pseudonymous Works
- Historical
  - Primary
    - Trade Bib.
    - National Bib.
  - Sub. Bib.
- Systematic
  - Author Bib.
  - Personal Bib.
  - Selective Bib.
  - Secondary
    - Unit Bib.
    - Bib. of Bibliographies
  - Special Bib.
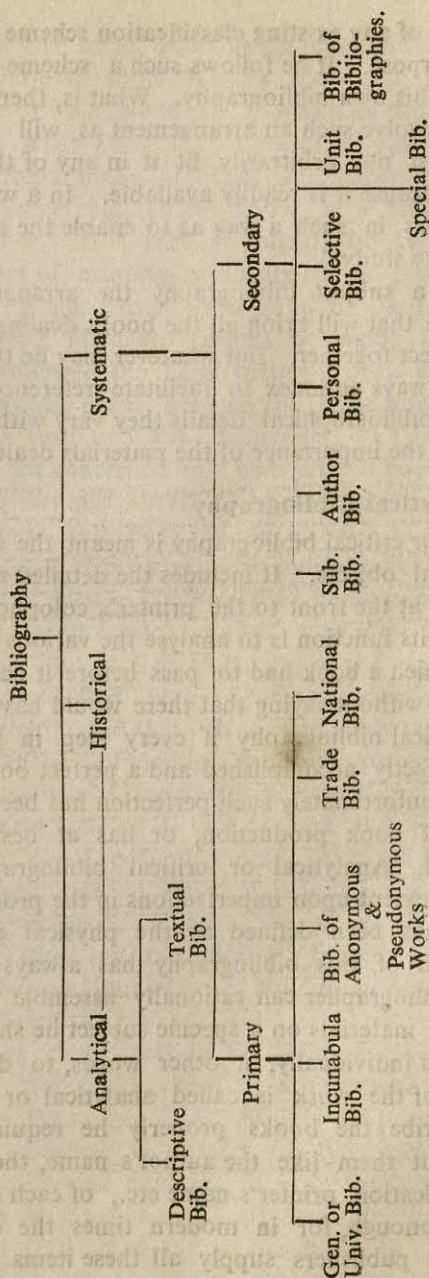
Therefore the use of any existing classification scheme may not prove suitable to the purpose. If he follows such a scheme it will simply mar the utility of his own bibliography. What is, therefore, desirable is that he should evolve such an arrangement as will fully serve his purpose and must not arbitrarily fit it in any of the conventional schemes simply because it is readily available. In a word, he should arrange the entries in such a way as to enable the readers to make a truthful objective study.

In the case of a subject bibliography the arrangement may be classified because that will bring all the books dealing with the same aspect of the subject together. But whatever may be the arrangement there should be always an index to facilitate reference. As regards the amount of bibliographical details they vary with the compiler's purpose and with the importance of the materials dealt with.

Critical or Analytical Bibliography

By analytical or critical bibliography is meant the examination of books as physical objects. It includes the detailed study of a book from the half-title at the front to the printer's colophon at the end. In other words, its function is to analyse the various procedures and stages through which a book had to pass before it became a finished product. It goes without saying that there would have been virtually no need of analytical bibliography if every step in the production process was perfectly accomplished and a perfect book produced in every case. But unfortunately such perfection has been a rare thing in the history of book production, or has at best happened in exceptional cases. Analytical or critical bibliography, therefore, rests to a large extent upon imperfections in the production process and as such, it has been defined as the physical examination of books. The need of this bibliography has always been obvious. For before the bibliographer can rationally assemble the entries of books and other materials on a specific subject he should be able to make those entries individually, in other words, to describe books. Now, this part of the work is called analytical or critical bibliography. To describe the books properly he requires some basic information about them like the author's name, the title, the date and place of publication, printer's name etc., of each of them. This work seems easy enough, for in modern times the current lists of book-traders and publishers supply all these items of information. But as they are scattered, he is only to hunt for them through many

volumes. Even this work has become easy and simple to-day, for the different National Bibliographies record the important literary and other output of the world from which he can easily collect his materials. But what about the output of the past—the manuscripts and the incunabula many of which are neither recorded nor dated nor placed ? Incunabula, as we know, is a Latin word meaning 'swaddling-clothes.' It is used to signify books produced in the infancy of the art of printing, especially those printed before 1500. The term was not much used in England till the 15th century when it replaced the term 'fifteener.' Books belonging to the incunabula class generally followed the hand-written books and as such, they hardly contained title-pages bearing the basic information required for entry in the proposed list. Moreover, as I have already said, bibliography is not concerned only with printed books ; it is equally concerned with writings surviving in manuscripts which are some-times equally terse and bare. Besides, even of the early printed books quite a good number give no indication of either printer or place or date. Hence before the bibliographer can make a systematic listing of such books and other records he should find out these basic facts. But to find them out is not so easy. Herein lies a skilled and complicated piece of literary detective work. Esdaile has, therefore, rightly said that "It is often only by much experience and research that the authorship, date and place of printing and perfection of copy can be satisfactorily established where the book does not bear these facts on its face." Just as a man setting out to describe a collection of pottery should have the knowledge of the elements, 'the technique of clays, of painting and firing, of glazes and marks' in order to describe the pieces exactly, so also a bibliographer setting out to describe books should have some knowledge of the technique of book-building in order to establish the facts required for entries.

Then comes the question of bibliographic collation. By comparing the books that bear these facts with those that do not bear them a bibliographer can certainly find out if there is any uniformity or variation in respect of type, ornaments, printers' devices, illustration and binding. It is in this way that he may be able to date the undated books and attribute them to their true printers. This method was first practised by Henry Bradshaw, Librarian of Cambridge University (1831-1886). But it was Robert Proctor, a young bibliographer (1868-1903) who followed this

method rather more extensively in order to date and place as many as eight thousand incunabula then existing in the British Museum. It is also by this method that Caxton's claim to be the first printer in England was established.

It is of course true that some bibliographers and book-collectors developed some fad or a sort of dry-as-dust devotion to incunabula and old literature and even wasted some precious years collecting title-pages, colophons etc. or quarrelling over blank leaves and dimensions by forgetting the more important business namely what these books were about, but that majority of them rendered an immense service to the cause of compilation by placing, dating and identifying the incunabula and early records—no body can deny.

Besides, there are also evidences of piracies and forgeries in the world of book production which are very difficult to detect. For example, sometimes there is the existence of numerous original editions with fictitious imprints. Only a knowledge of the general characteristics of printing, composition of paper, method of binding etc., as also of the history of printing, history of paper, book-binding and book illustration that can solve such puzzling problems. An example of the application of this method may be found in John Carter and Graham Pollard's "An Enquiry into the Nature of certain Nineteenth Century Pamphlets." By a minute examination of the materials used such as paper, typography, binding etc. it was discovered that certain books by some British authors were actually printed much later than the dates found printed in the books and were therefore, forgeries or frauds. Such investigation, it is needless to say, leads us into the domain of historical bibliography.

Analytical or critical bibliography is thus concerned with the recovery of details of the process of the physical make-up of the books. This includes all that Bowers has described as analytical, descriptive and textual and fully approximates what Hibberd has called 'Physical bibliography'. Sir Walter Greg has defined this bibliography unambiguously as the study of books as tangible objects. "It examines the materials of which they are made and the manner in which these materials are put together. It traces their place and mode of origin and the subsequent adventures that have befallen them." Now, this may be pursued as a pure discipline concerned with the "evidences about production processes as preserved in the physical features of books of various periods." The application

of such information usually takes the form of (a) Descriptive bibliography and (b) Textual bibliography both of which serve as intermediaries between the book and the textual or literary critic.

From all that we have discussed above we may, however, sum up the function of Analytical or critical bibliography in the following words :

Its business is to throw as much light as possible on all stages in the transmission of the text. Secondly, the study of analytical bibliography helps one in making a systematic study and research of a document. Thirdly, it helps us to ascribe a date to an undated book. Fourthly, it enables us to attribute to its true author a work the authorship of which is apparently unknown or at least doubtful. Fifthly, it also helps critics and editors to determine the authenticity of text of certain editions of works. Sixthly, it helps bibliographers and scholars to determine if the copy in question is perfect or not. Seventhly, it leads to the identification of the printer and subsequently to the correct arrangement of his productions within the sequence of his own printing. Lastly comes the most important function of recording the descriptive study of books which is so necessary in view of future events. On the whole, the function of analytical bibliography is manifold in the modern age of research and advancement of science, technology and social sciences.

Descriptive Bibliography—Its Difference from Enumerative Bibliography and Its Function

Descriptive bibliography concerns itself with the material forms of the books and not with their literary contents. It is the application of analytical bibliography to the external form of the book ; the application to the internal form i.e., contents of the book is the concern of textual bibliography. Descriptive bibliography merely records the results of the examination, and collation of books.

Descriptive bibliography, however, differs from enumerative or systematic bibliography in certain important points. While it confines itself to the description of primary documents, enumerative bibliography may 'list either primary or secondary documents or a mixture of both.' We may cite for instance, Sir Walter Greg's 'A Bibliography of English printed Drama to the Restoration' and 'The Cambridge Bibliography of English Literature.' While the former

lists only the primary documents i.e., the texts of the plays in their various editions and issues and state printed before 1660, the latter lists not only the Pre-Restoration and subsequent editions of the text but also the secondary documents about them like the critical and historical studies. The former, therefore, provides an example of descriptive bibliography and the latter that of Enumerative bibliography. As the purpose of Enumerative bibliography is only to provide a useful source of reference materials, the compiler may dispense with original documents altogether and may refer only to secondary source like the catalogue without making any personal inquiry. The purpose of descriptive bibliography, on the other hand, is to create a permanent descriptive listing of basic documents and hence it must ensure fulness and accuracy by personal examination and search inquiry. It is concerned "to describe the ideal copy of any particular edition with an account of all variations from this definitive ideal norm." An 'ideal copy' however does not mean that it is free from all textual errors. It rather refers to "the most perfect state of book as the printer or publisher finally intended to issue it in the issue described." Enumerative bibliography, on the other hand, may describe any copy without caring to know whether this copy is truly representative of the edition as a whole.

There was a time when books either produced by hand or printed had distinctive features. It must be remembered that one of the miracles of modern times is the availability of books to one and all. But alas ! this miracle has been achieved at the expense of colourfulness and distinctiveness. To-day books published are like modern militia in depressing 'khaki'. But in olden times books were produced with as much colourfulness, glitter and splendour as the armoury and accoutrements of the old soldiering. Hence when the manuscripts and later on, the printed books were picturesque and binding had some measure of quaint beauty descriptive bibliography came into its own. During the 18th and 19th centuries in Europe when the old printed copies of the great classics were at a high premium descriptive bibliography had a useful task to perform and it did it very well. There was a set of people called book-collectors who enjoyed buying distinctive old books and were ready to offer fancy prices for them. The person who helped them to determine the genuineness and integrity of their purchase was the descriptive bibliographer. Early Shakespeare Quartos, the early printed books from Germany, the beautiful products of the early

Italian printers, the glories of Renaissance binding—all these were explained and recorded by the descriptive bibliographer. Indeed it was he who educated the people into an appreciation of the beauty of book-production and created in them a taste for fine printing, good binding and the like.

Descriptive bibliography, however, has not much work to do in modern times chiefly because of standardisation in book-production. Books to-day have no longer the same look of splendour nor do they bear any prank of the early printers, illuminators and binders. They are now as plain as anything probably because modern man does not prize so much any outward embellishment and ornamentation and as a result the field of descriptive bibliography has narrowed down to a considerable degree.

Textual Bibliography

The same analytical bibliography that deals with the external forms of books under the name of descriptive bibliography also deals with their internal forms i.e., their contents under the new name of Textual bibliography. Textual bibliography is, in fact, the application of analytical bibliography to the inner form of the book i.e., its content and hence it forms the most controversial area of bibliography. The chief function of textual bibliography is to determine the effect of writing or printing process on the correctness or completeness of a text. In other words, its business is to discover and explain every fact about the means of transmission of the text from the manuscript to the finished work. It includes what Ferguson called 'the biography of the book.' Now, the question may arise why should we know and discuss textual bibliography at all when it deals with the contents of the book i.e., the text with which bibliography apparently has no relation. The need of textual bibliography is, however, very great to literary critics and editors rather than to librarians and bibliographers. We cannot, however, make any criticism good, bad or indifferent of any work whatsoever unless we are confident of the correctness of the text. Unfortunately, there are many old classics which vary from copy to copy in their texts. Sometimes even the names of the authors of certain works, the priority of their editions etc., cannot be ascertained because the original manuscripts have perished through the ravages of time and the record of the characteristics of individual printed editions has not been left. But should we, as such, leave those books untouched

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as sacred relics ? Modern scholarship is reluctant to show that veneration. It probes into them in order to find out the truth about authorship, about the originality of the editions and their priority.

To do so only the extant text is not sufficient. For there are books which have undergone much transformation from the original to the printed version so far as the text is concerned. It is known to all that between the author's mind and pen and the printed text quite a series of mechanical processes have taken place and the persons who have done much to transform the manuscript into printed copies had neither education nor literary taste. They were professional men, technicians and artisans who worked not out of love for learning but out of pure physical necessity of earning their bread. Naturally much depravation of the text took place in their hands. Sometimes a particular type was wrongly set, sometimes a word was misspelt, sometimes the text was misread and hence, printed wrongly and sometimes again, corrections were made while the book was on the press. All these factors resulted in variation in the text. A bibliographer who knows all about the mechanical processes of printing can ascertain these irregularities and thereby determine the text as originally conceived by the author. With this knowledge of the text, a literary critic can reasonably enter into the text itself and then form his idea about the book and its author. Hence, it is imperative that a literary critic must be at once a bibliographer and a critic. Textual bibliography thus covers under its scope all the things stated above. It helps one to edit a classic, to date an undated book, to ascertain the relative value of different editions of a book, to determine if the subsequent edition of a book was printed from an earlier one or whether it was printed from a copy that had been corrected in manuscripts and so on. Such investigation, as Dr Greg puts it, is really "three-fourths of textual criticism." It helps the literary editors to resolve the problem of the true text when different copies of the same edition present variation in reading. Textual bibliography is thus the backbone of textual criticism, for in the case of certain old and imperfect copies of books viz., Shakespeare quartos and some nineteenth century pamphlets it is almost impossible for one to throw any light on textual problems and then to make any literary criticism of the same without the knowledge of textual bibliography. A literary critic of such a work, should, therefore, consider it from two

different angles—from that of those interested in it as literature as also of those who composed, corrected, printed, folded and bound it. For bibliographical analysis of such a book enables a literary critic or editor to find out how the physical processes involved in its publication have, in certain circumstances, had a bearing on the development of the text and how they have finally illumined the text. Dr Greg therefore, finds no reason why there should be a conflict between the two provinces. He is even opposed to any attempt to limit bibliography to the fields of Descriptive and Systematic bibliography. Bibliography, in his opinion, should be 'the handmaid of literature.' Dr Copinger echoes him in the same way when he calls bibliography 'the grammar of literary investigation' by which of course he means 'investigation of texts' or higher or critical bibliography. Both Dr Greg and Copinger regard this as the only true bibliography, the rest being mere technique and drudgery.

Critical Bibliography vs. Textual Criticism

There is of course much difference between critical bibliography and textual criticism or critical judgment. The former is however, impersonal and based on physical facts while the latter is more or less personal and based on the subjective interpretation of the text by the literary critic. In case there is a clash between the two, even the literary critic accepts the bibliographical findings based as they are on physical facts. Some people, however, protest against the use of the term 'critical bibliography' and prefer the term 'textual criticism' on the ground that much of the work of critical bibliography, in their opinion, is involved in most cases in the process of literary criticism. But this objection is baseless since the functions of the two are widely different. While the function of critical bibliography is to construct the true text when much of it is corrupt, by bibliographical investigation and analysis, the function of textual criticism is to make critical comments on the text. Indeed the work of critical judgment begins only when the work of critical bibliography ends. It goes without saying that literary evidence cannot and should not be accepted unconditionally unless it is corroborated by bibliographical evidence. It is only when bibliographical evidence makes no sense that the critic is at liberty to choose any reading which, in respect of both style and sense, is relevant to

the context. After all critical bibliography concerns itself with the discovery and recording of physical facts about a book. Its main purpose is not to help the librarian or the book-collector to identify his copies but to serve, as Bower has said, 'as the penultimate step to textual and literary criticism'. From this it follows that though critical bibliography and textual criticism have their respective arena of activity, they occasionally overlap. For example, if a recension, that is, a revised text does not provide a fool-proof text, it is the duty of the textual critic to determine the true text as well as to distinguish between true and false readings. In the matter of editorial work, however, critical judgment is of paramount importance. Indeed critical judgment, that is, linguistic and literary criticism steps in to solve problems when bibliographical analysis fails to offer perceptible results.

Historical Bibliography

(The more advanced study of the books as objects of art is commonly known as historical bibliography.) Now, the question may arise—why should we study books as objects of art at all ? The answer to the question is that the significance of books is very great in every phase of civilisation and of life, because books, in the words of Thomas Lodge, are "the records of all that we know of human deeds and thoughts, of the failures, the success and aspirations of mankind." That is why Schopenhauer prized books as the monuments of mankind and even Pliny, the author of the famous book, **Historia Naturalis** said that "culture rests on written tradition." "Books", Milton said in his **Aereopagitica**, "are not absolutely dead things but do contain a potency of life in them to be very active as that soul was whose progeny they are ; nay they do preserve as in a vial the purest efficacy of that living intellect that bred them." But a more satisfactory estimate of the importance of books has been given by Dr Walter Greg when he says, "Books are the material means by which literature is transmitted and therefore bibliography, the study of books, is essentially the science of the transmission of literary documents." If that is so, books should be properly studied in order to understand their role and assess their value in the process of transmission. Now, the study of books as tangible objects falls within the province of analytical or critical bibliography. But when after exhaustive investigation into the physical make-up of the books the bibliographer records his studied observations and

assembles the historical book description, he in fact helps to write the history of the art of writing, printing, illuminating and binding and this falls within the domain of historical bibliography. Hence there is no such great difference between critical or analytical bibliography and historical bibliography. The latter is in fact an advanced step or an extension of the former. This includes history of writing, printing, book illustration, book-binding and book distribution, book collecting and many more areas of association all of which are directly or indirectly related to the history and march of civilisation.

The book, as we know it to-day, as something between boards and consisting of any number of pages with preface, illustration, index and appendix is the result of a long process of evolution in which many countries through the centuries have taken part. It is the business of historical bibliographer to trace the history of this evolution. Not only the form of the book has a rich history, the mode of its presentation of contents has also a long and rich, history from manuscript to printed form.

Historical bibliography has to content itself with the evolution of type-faces from its very early manuscript origin. Then again, the very material of which the book is composed—paper as we know it, though of comparatively late origin, has its own story to tell from its hand-made stage to that of machine-manufacture. But before the invention of paper there were other materials too such as clay tablets, tree bark, palm leaf, copper plate, stone, wood, animal skin and the like. In studying the history and distribution of the materials of writing we will have to cover the whole world throughout the stages of historical development. But what of writing itself ? Today every child knows its alphabet, but what is the rich history behind the alphabets which have become symbolic to a degree ? Assyria, Babylon, Egypt, Greece, India, China—all these ancient civilisations have an exciting story to unfold about the manner in which man set out to express himself in writing. It is the business of historical bibliography to go into all these. Then, there is the way the books are bound in most attractive fashion—in cloth and leather and at times using even more precious materials. The history of binding with its crude origins, its magnificent efflorescence in medieval and later ages, and its rather business-like culmination during modern times is also the subject of historical bibliography. There is much else to be dealt with under this head. But the main features of this

branch of the subject have been outlined above. When the province of historical bibliography is so vast and wide, it is as much a part of history and literature in general as it is of bibliographical studies. Indeed its special relationship to history and literature bears a strange resemblance to that between textual bibliography and literary studies. All these parts are so closely inter-related that they appear to be no more than points around a circle in which each is supported by all its neighbours.

Not only is the bibliographer a historian and an artist, he is also a guide and a friend and it is in this capacity that he shines in the modern world. Historical Bibliography has very nearly exhausted its topic on the art of writing, the invention of printing and the development of writing materials. His researches have been thorough and the sphere has been well explored. The same is true even of descriptive bibliography. All the glories of book-production have been recorded and studied. But fortunately for the bibliographer the uncontrollability of the Printing Presses still gives him his bread. Let us take thought just for one moment of how many books are there in some of the great National libraries of the world. The Library of Congress in America is reported to contain more than 12 million books and the British Museum Library nearly two-thirds of that number. And yet these numbers represent only a fraction of what has actually been printed. To-day the printing presses have multiplied and there seems to be no end of the materials pouring out of them into the world. Without the help of bibliographers to organise these materials the scholars and researchers would have been very much like babies in the wood completely lost. This naturally demands from us an estimate in some measure of the value, aim and services of bibliography in relation to various human activities.

Aims and Functions of Bibliography

There was a time when a diligent scholar could literally read all records of learning. There may be some exaggeration in the statement, but this exaggeration does not border on absolute fantasy or absurdity for really "there were periods in human history in which it was possible for the polymath or the polyhistor to be informed of the contents of much of that part of the extant record of human activity" which concerned him greatly. Undoubtedly there was but little need of bibliography in such an age. But in the modern world the number of books is almost appalling to every

reader and the rate of increase of publication seems to have surpassed even the rate of increase in human population. Hence it is not possible even for a voracious reader to read all the books published even on a single subject. Bibliography is an auxiliary of great importance in this respect. It unrolls the whole map of a branch of knowledge in which some one may be interested. As it is not possible for a man to learn everything, he should be wise enough to learn what to learn. Some one has further said that "the most valuable knowledge is knowledge that leads to all knowledge", and there is much substance in the statement. Bibliography really provides us with that kind of knowledge. It shows us the way in the field of knowledge and book-production in a way. It is, perhaps, a key with which we can unlock the treasure-house of knowledge. Indeed, bibliography is for readers what Ariadne's thread was for Theseus in the labyrinths, and what the compass is to a sailor in an uncharted ocean. That is to say, bibliography gives the reader a clue to extricate himself from the vast maze of books on his subject and gives him a sense of direction in the midst of the ever increasing flood of literature. It has thus simplified the work of research scholars in every branch of their inquiry by preserving, collecting, describing, arranging and classifying the mass of books and in higher form by commenting on them for the benefit of the researchers and serious readers. Another great importance of bibliography is that it provides information about the prior records of communication through which culture has survived. Bibliography is dependent on such prior records because they are the first sources of information on any subject. Hence but for bibliographies it would have been difficult even for an assiduous scholar to gain access to the ideas and information contained in them. Bibliography is thus a vital aid to the study of history.

Thirdly, in the days long gone by when there was no organised bibliographic management a researcher could hardly trace the literature published on his subject in different countries and in different languages even if he had access to a really large library and hence duplication of research was bound to take place. But with the progress of more training in the sources of information and bibliography in the world to-day much unnecessary labour is now saved and much duplication avoided. As a matter of rule every investigation to-day begins with a bibliography and must end with a better bibliography, as George Sarton has truly said.

Fourthly, bibliography at its beginning is more or less a preparatory work to a scholar for his true work in the chosen field. It may at first appear to him to be a lower type of learned activity, but really it is not so, because it is the basis on which he rests and the point from which he marches to reach his goal. Hence but for such a preparatory work a researcher may have to grope in the dark without knowing how far knowledge has been unfolded in his subject and wherefrom he will start working.

Fifthly, bibliography preserves all books good, bad and indifferent from oblivion. There are of course books that will never die. There are others that lead such an isolated existence that they appear to be dead even though they live on. Yet there is a third variety that must struggle hard for their existence in order to assert their right to live. To the first category belong the classics and the 'lively books' that survive the ravages of time and the pranks of human appreciation, to the second belong such works and treatises which allure only 'a group of understanding intellects' but the third includes such books half of which at least should not have appeared at all. Bibliography, however, is concerned not only with good books but also with the bad ones. Good books do not require the aid or assistance of bibliography for their survival, but the bad books require it, for otherwise they would be cleanly forgotten. Moreover, every book whether good or bad is important because while "good books can tell us the mind of one man, bad books can tell us the mind of many men".[1] Thus bibliography which enlists books both good and bad on a subject not only gives a graphic picture of the subject comprehensive upto a certain point and date, but also ensures the life of almost every publication on a given subject.

But the role of bibliography is still greater in the field of science and technology. To the scientist it is most important because he should have at his beck and call everything that is published on his research in the quickest possible time. But how can he be provided with the same unless the learned periodicals and journals in which every original scientific work first makes its appearance are also taken into consideration ? A bibliography merely of scientific books will, therefore, be of very little use to him. It is the duty of the bibliographer to save the time of the scientist in this respect by giving him what he needs and the moment he needs it. We can cite,

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[1] G. K. Chesterton. *Heretics.*

for example, the various science abstracts like the Biological Abstracts, the Chemical Abstracts and so on which are published periodically for the benefit of the research students. In a word, the bibliographer should not only take the reader by the hand, so to say, and lead him through the high ways and the by-ways of his subject ; he must also give him a bird's eye view of the whole field. As an example of the comprehensive work of the bibliographer we can cite the instance of the British National Bibliography or the National Union Catalogue and as an example of its detailed work we can refer to the Science Abstracts. In other words, as in an atlas we first get a relief map of the country and then a map showing us the details of urban development, the railways etc., and then in succeeding maps we get each part of the country dealt with in greater details, so also in a bibliography we should get not only the general conspectus of the subject, but also its ramifications.

The need of Bibliography in the field of scientific research thus requires no emphasis. We can easily imagine what would have happened to research and scholarship, education and Public health, trade and industry if there were no supporting bibliographical services. It is indeed due to the deficiencies in the bibliographic services that such important scientific achievements as the invention of aeroplane, the use of D. D. T. and the application of research in vitamin were delayed for decades.

As regards modern libraries the importance of bibliographies cannot also be over emphasised. For they not only encourage the study of books and other reading materials but also enhance the curiosity of the readers and increase their desire to know more and more of publications in different fields. They help the library workers as well, by supplying them with names of publishers, years and places of publications, price and so on. Indeed the importance of bibliographies in modern libraries is so great that nearly half of their reference collection now comprises bibliographical tools.

We may, however, sum up the aims and functions of bibliography in the following words :

(a) As it is an index compiled systematically on a subject, it serves as a guide to the literature of the subject.

(b) Bibliographies are keys to the vast accumulation of literature that is constantly growing. They are like the compass guiding the traveller through unexplored regions.

(c) Whenever we are to verify a title or collect an information on any subject, we are to consult a subject bibliography.

(d) It also helps us to ascertain bibliographical data about an author.

(e) As the financial capacity of a library is often limited, book selection is largely dependent on bibliography.

(f) It also helps us in two ways : in finding out materials on a subject and in preparing new bibliographies for readers.

(g) It enables a research scholar to know what materials are already there on the subject. He may get information on the fundamentals as well as on the latest development of the subject. Thus he comes to know how far knowledge has been unfolded in his subject and can decide for himself wherefrom he will start working. This saves his time and labour. It is said that a biographer and critic spent some two or three years to find out some particular aspect of Chaucer and at last found to his surprise that some one else had done all this long ago. Hence a researcher must first turn to bibliographies, before he begins to delve out facts and form opinion on his subject. And it is not the researchers and writers alone who require to consult them ; the general readers are also benefited by them.

(h) It may also create new interest even among general readers. While going through a bibliography even an average reader may come across an attractive title or an outstanding author and he may at once feel tempted to go through it, even though he had no such desire a few moments back.

(i) The increasing number of scientific books published every year, and the multitude of journals devoted to science and related subjects make it impossible for even an assiduous scholar to go through them all and hence he must turn to a complete bibliography for guidance.

(j) When a librarian or a scholar seeks guidance on what is most suitable for a particular purpose among a number of possible books and articles he turns to a selective bibliography.

(k) Selective bibliographies also help a librarian to decide which authors should feature in his collection and in which editions they should represent them.

(l) "It is aimed at the librarian, the general scholar, and the layman requiring data on a subject".[1]

(m) It also provides lists of prior records of civilisation which are the prime sources of information on any subject.

(n) As it preserves all books, good, bad and indifferent, from oblivion, it gives a comprehensive survey of the whole field of a subject.

(o) Lastly, it may serve as a conventional tool for the general readers who may find out quickly the basic reading materials on a subject. It is thus a sort of universal catalogue.

The UNESCO/Library of Congress report, 1950, summarised the aims and functions of bibliography in the words stated below :

Its aim is to

(i) "make it possible for intellectual workers to learn of publications recording the developments in their fields of interest not only in their own countries but also throughout the world.

(ii) "promote the effectiveness of particular projects in research.

(iii) "contribute to the cultural development and enjoyment which are derivable from the records of learning and culture.

(iv) "assist in promoting useful applications of existing knowledge and in making the applications which have been developed in one country widely known to all countries."

Difference between Bibliography and Catalogue

One thing that still remains to be dealt with in this connection is the difference between a bibliography and a catalogue. The term 'bibliography' was first used by Louis Jacob de Saint Charles in his 'Bibliographia Parisiana' (1645-50) but it did not come into popular use until the 18th century. There are still a number of terms used to denote bibliography of which the one which is in common use is the term 'catalogue'. Catalogues treat of books as property and they may be subdivided into antiquarian, trade and auction catalogues, catalogues of special and large libraries and so on. It is the business of the catalogue to help both the Library staff and the reader to find out whether the library contains books by a given author, what books by him are available, whether a certain book on a given subject is available in the library, what books on a given subject are

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[1] Hibberd, Lloyd. 'Physical and reference bibliography'. The Library ; Fifth Series. Vol. XX (1965), pp. 124-134.

available, if the library has a book bearing a certain title, of certain series, by a certain editor or by a certain translator etc. The business of bibliography, on the other hand, is to show what books have been written and published on a given subject and how far knowledge has been unfolded in it. That is to say, bibliographies thus deal with the whole field of book knowledge.

A library catalogue, again, differs from a book list in which bibliographical information is frequently slight, and the essential details of a catalogue are omitted.

Even now the two terms are synonymous in many countries, though technically there is a lot of difference between them. Bibliographies primarily list books currently published while catalogues list collections of books. This naturally brings out many other points of difference.

(i)   Bibliography is a list of books in general or on specific topics, but not limited to any particular library, whereas the library catalogue is concerned with the stock of the library.

(ii) While the basic purpose of a library catalogue is to serve its users in an efficient manner, the basic purpose of bibliography is to supply the specialized needs of the scholars.

(iii) The catalogue helps a reader to locate an obtainable book very easily and quickly which bibliography is incapable of doing. Conversely, as bibliograply not only lists all the documents that have been written and published on a subject but also shows their sources, it helps a scholar or a researcher to obtain the documents from those sources. A library catalague because of its limited scope can, on the other hand, supply only such materials as are in the stock of the library.

(iv) Bibliographies should give in clear terms all the bibliographical peculiarities so that they may at times replace the study of the book. Hence entries in bibliography must be accurate and complete but entries in catalogue are very often concise and brief and there is no attempt to include the contents of periodicals.

(v)   A library may have catalogues of special collections, but they cannot fully serve the purpose of subject bibliographies because of their limited coverage.

(vi)   There are two methods of arranging catalogues—either alphabetical or classified. Bibliographies, on the other hand, may be arranged in a variety of ways—alphabetically by author or title, chronologically or alphabetically by subdivisions of the subject treated, or in a classified manner.

(vii) A bibliography may be complete or selective and limitations may be laid down by the compilers. The catalogue of a library, on the other hand, is limited only to the stock of the library and there is no question of its being selective or limited.

(viii) In bibliography there is only one entry for one book but in catalogues entries are quite numerous viz., subject entry, title entry and other added entries.

(ix)   While the catalogue essentially resembles an index, the bibliography in its individual entries represents a source list.

(x)   Bibliography may be limited to a particular author or country or subject, but not to a particular library or a group of libranies where as catalague is limited to a particular library or a group of libraries but not to a particular country or author or subject.

(xi)   Catalogue is meant for consultation in the library for finding out the requisite reading materials but bibliography is mainly required by the researchers who want to know all about the publications in their subjects of interest. Bibliographies can be issued to the readers, but catalogues cannot.

(xii) Bibliography is usually in book form and hence it is portable. But catalogues (except the printed ones) are bulky and so they cannot be carried out.

(xiii) The catalagues of big libraries like the British Museum, the Library of Congress etc. may serve the purpose of General or Universal Bibliographies, but bibliographies because of their wide coverage cannot serve the function of a library catalogue.

(xiv) The purpose of bibliography is manifold and its scope is wide, but the scope and purposes of catalogue are restricted and few.

Bibliography—The History of Its Development

The listing of books is of ancient origin. There had been lists of clay tablets even ni the Library of Sennacherib at Nineveh in the

7th Century B. C. which, together with other records, have been found out by Sir Henry Layard and other Assyriologists. Even the library at Alexandria had subject lists of its books. In fact in all periods of human history from the Assyrian to the Greek and thence on to the modern age the contribution of libraries to the business of making systematic lists has been considerable. Bibliography, as it means today, had thus its beginning in such rudimentary form which through the evolution of centuries has reached its present character.

The systematic listing of documents which goes by the name of systematic bibliography today had its true beginning not earlier than the 16th century. It was Konrad Gesner, a profound scholar and renowned physician of Zurich who brought out for the first time a universal bibliography—*Bibliotheca Universalis* in 1545 containing 15,000 titles in three learned languages : Latin, Greek and Hebrew. It was the first landmark in the history of bibliography. It was really a pioneering work in as much as it not only listed documents of all kinds produced in all the countries of the world in three learned languages : Latin, Greek and Hebrew but also followed a method of arrangement universally applicable for the purpose of compilation of all general or universal bibliographies and national bibliographies. Dr Gesner had, however, excluded in this work all books written in vernacular languages because such vernacular books were not considered in those days to be worthy of study by scholars and learned men.

The next important milestone in the history of compilation of bibliographies was the *Messkatalogue*, that is, Fair Catalogue, published sometime in the second half of the 16th century. It was a catalogue of books meant for sale in the book fairs held in Frankfurt and Leipzig. This booksellers' catalogue listed books issued by the different famous European Presses. Originally published as a regional bibliography its scope was gradually widened by the middle of the 17th century when a few books published beyond the region were also included in it.

Another pioneering work in the field was the *Stationers' Register* which furnished information regarding printed matter during the latter half of the 16th century. Maintained by the Stationers' Company which was granted the monopoly of printing in the Kingdom by a royal charter in 1557, this bibliography contained all the

books brought out by the members of the Company. Its purpose was to prevent the piracy of any printed book and the infringement of the right of a printer-member by another by the imposition of a fine.

Towards the close of the 17th century another laudable attempt in this field was further made in France by a clergyman, Abbot Drougn, religious adviser of the Parliament de Paris. He compiled a universal bibliography based mostly on other catalogues, which, however, remained unprinted. As the people began to realise the need and importance of bibliographies they started making them more comprehensive and informative by adding descriptive notes to the individual entries. Subject bibliographies also began to appear by the beginning of the 18th century, revealing to the scholars books in their respective subject fields. The close of the 18th century witnessed the progress of the work of compilation further. Two Italian scholars Abbot Marucelli and Father Savarouche compiled a general bibliography by following the Gesner plan.

With the progress of time the work of bibliographic compilation also began to progress so much that a good deal of famous bibliographies appeared in different countries like England, France, Germany and the like in the early years of the 19th century. Robert Watt, for example, brought out in 1824 his *Bibliotheca Britannica*—a general index to British and foreign literature. It was the first great bibliographical work produced in Scotland. Another significant milestone in the history of bibliographical compilation was the *Guinea Catalogue* of old books—a valuable early bibliographical work compiled by Henry George Bohn, a renowned publisher and author. His *Antiquarian Library* published from 1847 onwards also deserves mention. Sir Samuel Egerton Brydges, the noted British bibliographer also brought out his very valuable bibliography, *Censura Literaria* in 1805—1809 and 1815. Thomas Frognall Dibdin, another famous British bibliographer and the librarian to Lord Spencer also published a number of bibliographies including his famous *Introduction to the Knowledge of Rare and Valuable Editions of the Greek and Latin Classics* that came out in 1802 and his *Library Companion* in 1824. The contribution of France and Germany to the growth of bibliographies was also of paramount importance. We may refer, for instance, to the most well-known and effective universal bibliography, *Manuel der Libraire* by J. C. Brunet, which contains entries of more than 40,000 important works. There were

other eminent bibliographers as well like Schrittinger, Pitzholdt, Burnwell, Holtinger, Erman, Hazlitt and Lang whose contribution to this field was also by no means insignificant.

The Catalogues of the British Museum and the Library of Congress which serve to a great extent the function of universal bibliography were also planned and published by the end of the 19th century, the former appearing from 1881 and the latter from 1898. Paul Otlet and Henri la Fontaine of the International Institute of Bibliographies of Brussels established in 1895 later named International Federation of Documentation also strived hard to bring out a World Index which unfortunately fell due to lack of adequate support and problems inherent in such a large venture. The Brussels Institute continued its efforts to compile a universal bibliography right up to the early years of the 20th century. The outbreak of the First World War dampened its spirits and consequently its interest in compiling bibliography declined. The outbreak of the Second World War made the prospect of the compilation of universal bibliography still more remote and bleak. The close of the war saw the establishment of the U.N.O. and the UNESCO which brightened the prospect of peace and progress of mankind. The Unesco realises the importance of universal or world bibliographies but it also feels the practical difficulties in bringing it out in a complete form. Hence it has been encouraging the compilation of national bibliographies throughout world because "universal bibliography," in its view, "is possible only in terms of national units". Universal bibliography in its true sense has so far remained a dream and is likely to remain a dream for ever.

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CHAPTER II

EARLY WRITING MATERIALS

On leaf of palm, on sedge-wrought roll,
On plastic clay and leathern scroll,
Man wrote his thoughts.

—J. G. Whittier

Early writing materials commonly used before the invention of paper were many and varied. Probably the 'first writing material was stone, the first writing an inscription and the first pen a chisel'.[1] Indeed the earliest writing material was rock or stone on which rude scratchings were at first traced by scribes and then actually cut by stone-cutters who probably had no idea of their meaning. These rock or stone inscriptions seem to have been the world's early writings the evidence of which is still found on the Pyramids in Egypt and on hill sides, columns and pillars of stone in India. The instrument with which this writing was done was a metal tool called chisel which had a sharp edged end. But as these stone blocks were rather heavy and could not be easily carried from one place to another, the need of something lighter and more portable than stone as writing material was felt and as a result bricks or clay tablets came into common use at the hands of the Chaldeans, a semitic tribe that flourished in ancient Babylonia. They used to impress the characters with some kind of stamp or stylus into the tablets of soft clay which could then be baked in order to give the writing permanence. One of the specimens of such claybooks, now in the British Museum, is an account of the flood and this is perhaps the oldest existing example of writing which is believed to have been inscribed about the year 4000 B.C. Besides, there were other kinds of Chaldean clay tablets which dealt either with wars or hymns or with such subjects as agriculture, politics and astrology, royal decrees, magic, law and science. A huge quantity of such tablets and cylinders of baked clay, some perfect and some in broken fragments, inscribed with the characters known as Cuneiform were

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[1] Esdaile, A. *A Student's Manual of Bibliography.* Chapter II, Para I.

discovered in 1850 at Koujunjik on the Tigris, opposite the modern Mosul by Sir Henry Layard and other Assyriologists. They were found in two small rooms carefully arranged and catalogued. These tablets, bricks and cylinders formed the library of the great Assyrian monarch Assur-bani-Pal. In recent years, by the seventies of this century quite a good number of such clay tablets nearly 16,500 dating from the 3rd millennium B. C. were unearthed in Syria by some Italian archaeologists. A preliminary study of these clay books is sure to revolutionize our knowledge of the area's history. It is believed that they formed part of the archives of the city state of Ebie. Though most primitive and awkward of all books these were the first 'books' of the world.

Jade, bone, shell, and pottery were also used as writing materials in China in the early stage of her picture-writing and later on in the 5th century B.C. in the days of the great philosopher Confucius literature and ethics were written on tablets made af bamboo fibre and wood pulp. These tablets were often scratched with a pointed stylus and sometimes they were painted with India-ink. The Chinese also wrote books on silk and slips of wood as early as the sixth or seventh century B.C. The slips of wood were fastened together side by side by means of silk thread so that they could be folded like a book. A book made of such slips of wood was known as *ts'e*. Metals like lead, copper, brass and bronze etc., were used as writing materials at a considerably later stage, the letters being inscribed in them with something like a sharp-pointed metal tool.

The earliest known inscriptions in China seem to be the *oracle bones* numbering about 100,000 the date of which is believed to have been 1,100 B.C. These inscriptions dealing with various subjects like war and expedition, birth and death etc. were perhaps scratched on bones and tortoise shells by the Chinese astrologers for the purpose of knowing the future. Bronze vessels of wonderful design and workmanship bearing valuable inscriptions were also produced in the eleventh centry B.C. during the rule of the Chou Dynasty. By the beginning of the Christian era calligraphy in China reached a high status as an art and it was held in so high esteem that even emperors and courtiers worked as calligraphers and felt proud to call themselves so. They wrote on paper which had already been invented in China, by means of brush made of the hair of either gorillas or tigers and wolves or even of the whiskers of mice. The reverence for the

art of writing was so great in China that paper, brush, ink and ink-slab were considered to be "the four precious things of a scholar's study." The use of silk strips, rolls and wood as writing materials continued even after the invention of paper, perhaps even after the invention of printing.

During the Greek and Roman periods the commonest form of writing was by means of a stylus, a sort of pointed metal pencil upon wax-covered wooden tablet. One of the greatest advantages of these wax-covered wooden tablets was that the same tablets could be used over and over again for writing purposes only by melting the wax. There was also very liberal use of bamboo and tree bark as writing materials in some parts of the world. Palm and other leaves, birch-bark, wood and skins of various animals were also used for writing purposes in some countries of Eastern Asia like India, Ceylon and Burma. The inner bark or rind of trees was used also by the ancient Chaldeans for writing purposes. They used to call it 'leber' from which Latin 'liber' meaning a book has come and it is from Latin 'liber' again that ultimately the English word 'library' has come. Indeed the most widespread source of writing materials seems to have been the trees and plants, particularly beech, fir and the like from the very earliest times everywhere in the world wherever writing was known. That seems to be the reason why the English word *book* is derived from the old English word $b\bar{o}c$ which means beech. Animal skins were also used as writing materials in Egypt even before 1500 B.C. But prior to the invention of paper the most important writing materials were papyrus, parchment and vellum.

Papyrus

Papyrus was manufactured in Egypt thousands of years before Christ from the stem of a tall flowering river plant that grew in abundance in the valley of the Nile. The stems of these plants were at first cut into very fine strips of two-foot lengths by splitting them downwards with a sharp knife. These strips were then laid side by side on a board and coated with a paste made from a mixture of flour and Nile-mud. A second layer of strips was then set across the first and the two were then either hammered or pressed. The sheet thus assembled was afterwards dried in the sun and polished with a bone-tool so that its surface could be written upon in ink with a soft quill, the hollow stem of a feather used as a pen or with a reed pen made

of the stalk of grasses or of canes and bamboos. Papyrus was the material of practically all the books of antiquity.

The Egyptians introduced papyrus as a writing material in about 3500 B.C. and it was really useful until the introduction of parchment. Papyrus as writing material was introduced into Athens as early as the 5th century B.C. and since then for more than thousand years it was used by the Greeks and the Romans for writing purposes. The Romans imported large quantities of papyrus from Egypt, prepared them at home, graded them according to quality and then sold the same both within and without the country and thus they built up a very lucrative trade.

At first single sheet or leaf of Papyrus was used for writing purposes. But when complete books had to be written, they required something longer than single sheet or leaf. The papyrus books were therefore, made in long rolls prepared by pasting several such sheets together in order to form a continuous length. They thus looked very much like modern maps. The matter was written on one side only and a wooden stick was attached at each end so that the book could be easily folded for preservation and desptach. Some of these rolls were very long but the general tendency was to make them comparatively short. The papyrus was sometimes about a foot in width. These manuscripts were written by scribes with reed pens in ink made generally of lamp-black and gum.

To distinguish the books each of them was provided with a ticket bearing its title which was generally fastened to either of the sticks. The writing was generally two or three inches wide. Homer's Iliad was probably written on such twenty-four different rolls. But it was a tedious job to unroll the book everytime it was necessary to refer to a particular column and hence the sheets of papyrus were folded down the middle to make a unit of four pages. These sheets were then stitched together and made into a volume by binding them together in wooden covers. From the Latin word 'volumen' which means a roll has come our word 'volume' which, however, means anything that does not or should not roll up. This shape of the book goes by the name of 'Codex'. The Latin word 'Codex' means 'tree-trunk' or 'block of wood'. The earliest codex books were the Roman law digests and the Bible to which rapid reference was often sought.

Egyptian literature was mostly written on papyrus. 'The Book

of the Dead' is perhaps the earliest Egyptian book a copy of which
has been preserved in the British Museum. It was written in the
golden days of Egypt when her great Pyramids were built up. The
book has a highly religious design, for it is full of psalms and
prayers and invocation[1] to the deities. It was held in so high esteem
that the ancient Egyptians used to place a copy of the book in the
tomb of a dead person to ensure safe conduct of the soul in its
heavenward journey. There was, as such, frequent demand for the
book and consequently book-trade started in the Nile valley. The
other book of Egyptian origin "The Precepts of Ptah-Hotep", it is
supposed, was written long before the Indian Vedas. It is perhaps
the oldest book in the world, older than the Homeric works or
Solomon's writings. It was written on a papyrus measuring
$23'7'' \times 5' \frac{7}{8}''$. It is now in the Bibliotheque Nationale in Paris.
Large numbers of Egyptian papyri and fragments some of which are
devoted to science were discovered in the early part of the nineteenth
century. The papyrus of Leyden found in a tomb at Thebes in 1828
is preserved in Leyden Museum and a portion of the same known as
Stockholm papyrus is kept in Stockholm Museum. It is written in
Greek and deals with the production of imitations of an alloy of
gold and silver and of gem and dyes. Examples of Papyrus Codices
are of course very rare chiefly because papyrus was brittle and had
a tendency to crack with age. Papyrus thus continued to remain in
use right upto the 11th century, but gradually it was supplanted by
parchment and vellum probably because it was no longer available in
quantities needed for book production.

Parchment and Vellum

Parchment was equivalent in older language to vellum but in strict
modern use there is a difference. Except that both are animal skins,
they are equal neither in quality nor in texture, nor in the methods
of their preparation. Vellum is a finer material than parchment and
is prepared differently. While parchment is made from the inner
side of the split skin of a sheep, vellum is prepared from the unsplit
dressed skin of a new-born calf. Vellum has also a finer, whiter and
smoother surface than parchment and hence in those days it was
used only for costly manuscripts. There is, however, a finer variety
of parchment known as *Virgin parchment* made from the skins of
new-born lambs or kids that can reasonably compete with its nearest
rival-vellum.

Though parchment was used as early as 1500 B.C., it did not gain popularity and extensive use until the beginning of the Christian era. There is, however, a legend about the origin of parchment. In the 2nd century B.C. Eumenes II, King of Pergamum, an ancient city of Mysia (Asia Minor) in order to build a large library appealed to King Ptolemy Epiphanes of Egypt to supply him a large quantity of papyrus for this purpose. When Ptolemy refused to export so much quantity of papyrus, Eumenes instead of abandoning his project prepared his entire library on parchment made from the skins of sheep, goats and pigs. This parchment became known as *Charta Pergamena*. Parchment has probably taken its name from the city of Pergamum which was then the centre of its trade. Parchment thus superseded papyrus as a writing material mainly on account of the ban on the exportation to Pergamum of the Egyptian papyrus. An old example of the futile exercise of trade restrictions ! Parchment, however, proved to be a better medium for writing than papyrus and hence it was more expensive because it was smooth on both sides, stronger and more durable. Papyrus competed with parchment for nearly three hundred years and it was only in the 4th century A.D. that it gave way to its superior rival and finally became extinct altogether.

Vellum as its name implies (old French Velin ∠ vel which means calf) is a writing material made from the skin of a newborn calf. It requires much treatment before its surface can be written upon. After cleaning it in a long exposure in lime it is stretched in the sun and dried and then trimmed with a knife. It is then dusted with chalk and rubbed smooth with pumice-stone. Prepared thus the piece of vellum can be written or printed upon. Vellum can also be dyed in any hue according as the printer or binder likes. The finest vellum known as *Uterine Vellum* was made from the small skins of calves which were unborn or died at birth and it was used only for the most expensive manuscripts. Vellum is still used by calligraphers noted for their penmansip (Gk. 'Kallos' means beauty and 'graphein' means 'to write') and by printers for the production of finely printed editions. For example, the great 19th century English poet William Morris distinguished not only as a poet and artist, but also as a decorator and printer used vellum for printing his Kelmscott Press books. Vellum has really a creamy tint which imparts brilliance to print. It is also heavier than parchment and more expensive and is perhaps the

most beautiful and the most durable of all materials used for books. Vellum already used can be re-used for writing a new text after erasing the first writing and the manuscript thus prepared is called a *palimpsest*.

Parchment and vellum books appeared in the 3rd century A.D. Instead of being continuous rolls sheets of parchment or vellum were folded down the middle to make a unit of two leaves or four pages. The successive sheets were then laid one on the top of the other and stitched together at the fold in such a way that wherever the book was opened, the two opposite pages were found to be of the same texture, both being either the 'flesh side' or the 'hair side'. The book thus secured was then bound together between two wooden boards which were sometimes ornamented and sometimes covered with leather.

The oldest illuminated manuscript written on vellum is the Virgil which is now in the Vatican. There is a parchment manuscript in the Hunterian Museum at Glasgow which is so accurately and beautifully written that it was regarded even the other day as a printed book. It is said that Zoroaster, the supreme religious teacher of the Parsees was the author of twenty books which were written on twelve thousand cow-hides. Much of his teaching is said to be contained in the Zend-Avesta which probably belongs to the period between 250 and 600 A.D. Likewise many other books written on parchment and vellum have been preserved and they are now housed in different libraries of the world.

Early Writing Materials of India

Writing materials commonly used in ancient India were of two kinds : (i) some were durable and more or less permanent while (ii) others were perishable by nature. To the first group belonged such materials as stone, copper, iron, gold and silver while to the second belonged such soft and perishable materials as birch bark, palm leaves, cotton and silk cloth and so on. The former were used for recording royal edicts or proclamations. royal eulogy and legal documents while the latter for books and ordinary correspondence.

Durable Materials : Stone or Rock

Of the durable materials stone or rock formed the most stable surface to write upon. When the art of writing became more or less common, only such documents as were desired to be permanent were

engraved or incised on rocks, pillars of stone and the walls of caves and temples. Such 'sermons in stone' and other monumental writings are found scattered all over the country from the Himalayas in the north to the State of Mysore in the south and they are the earliest specimens of writing that have survived. Most of them are the inscriptions of the great Buddhist emperor Asoka belonging to the 3rd century B.C. and they are the first indisputably datable specimens of writing in India. Though writing had been in vogue since immemorial times, documents prior to Asokan inscriptions have all perished, may be due to the Indian climate and partly due to the perishable materials on which they were written. When rough stone was used for writing purposes, the ground was often prepared by rubbing and polishing before writing was incised. A good scribe or artist then wrote the text with ink or dye on its smooth surface which was then incised by an engraver. To lend beauty and grace to these inscriptions margins were often left on all sides and sometimes the surface of writing was lowered than the rims on four sides with auspicious religious symbols engraved at the top and bottom of the inscriptions. Complete literary works were also written sometimes on stone. For example, dramas written by Chauana king Vigraha IV and his court poet Somadeva are found carved on slabs of stone at Ajmer.

Clay Tablets or Bricks

Though clay tablets or bricks did not constitute the commonest form of writing material in India as they did in ancient Babylonia and Mesopotamia, they were used from time to time for writing purposes a few specimens of which containing "a single or a few letters and originally set up in the walls or niches of temples or on pedestals of images" were discovered by Cunningham and other archæologists in different parts of India. Religious texts were also inscribed sometimes on such clay tablets, a specimen of which containing Buddhist Sutras was discovered by Hoe in the former North-West Province (Uttar Pradesh). Besides clay tablets or bricks, earthen pots and seals were also used as writing materials.

Wooden Boards

Wooden boards as the media of writing had been in use in India since the Buddhist age. We find reference to it both in the Vinaya-pitaka and the Jātakas. These writing boards were then known as

Phalakas which were used by the beginners for learning the alphabet.
From the Buddhist work 'Lalitavistara' we come to learn that boards
made of sandal wood were used like slates in schools. Pieces of
varnished wood were also used at times for writing loveletters the
reference to which is found in the *Dashakumara-charita*, a sanskrit
fiction by Dandi. Wooden boards were also used for writing manus-
cripts. The Bodleian library at Oxford possesses an Indian manus-
cript written on such wooden boards.

Metals : Gold and Silver

Even though metal was a more lasting and handy material, it was
sparingly used as medium of writing in ancient times. Its use,
however, gained popularity only in later periods. Of the metals in
common use the most prominent were gold, silver, copper, brass,
bronze, iron etc. The prohibitive price of gold, however, prevented
its use on a wide scale. Gold was therefore, used only for very
important documents like moral maxims, royal letters and land-grants.
There is reference to it even in the Buddhist Jātakas. A gold plate
bearing an inscription in Kharosthi was discovered at Ganga Stupa
near Taxila by the great oriental scholar Cunningham. Silver though
cheaper than gold was still less in use as a writing material. Never-
theless some official documents were inscribed on silver plates a
specimen of which was discovered at Taxila and another from the
ancient stupa at Bhattiprolu.

Copper

Copper was, however, the most widely used material on which
various kinds of documents were inscribed, the commonest being
land-grants, edicts and royal documents. The inscribed copper plates
were variously called viz., tāmrapatra, tāmrasāsana, dānapatra etc.,
according to the contents of the inscriptions. Reference to the use
of copper for writing purposes in ancient India is found in the
accounts of both the great Chinese pilgrims Fa-hien and Hiuen
Tsiang. The copper plates were hammered into various shapes and
sizes, some looking like palm leaves and some like birch-bark. After
the plate was prepared an expert writer generally wrote on it the
body of the text at once legible and beautiful which was then incised
by an expert smith either with a chisel or with a graver. Sufficient
margins were, however, always left in order to lend grace to the
inscription. Copper had thus been in use since very ancient times

down to almost 12th century A.D., when it fell from grace with the rise of Muslim power in India.

Brass and Bronze

As regards the use of brass and bronze as writing materials little remains to be said, for they were hardly used for independent inscriptions. A few specimens of brass inscriptions are, however, found on the brass statues, in the Jain temples of Achalgadh at Mount Abu, but at no period was brass used for independent writing. While statues were made of brass, the bells in the temples were made of bronze and on these bells were sometimes inscribed the names of donors and the dates of the donation. This is the only evidence which entitles this base metal to claim its place among the early writing materials.

Iron was still sparingly used as a writing material probably because it was subject to rusting and decay. There is still, however, an iron pillar inscription in Delhi near the Qutub Minar which contains a long eulogy in rust-proof iron. Similar specimens are also available though their number is negligible.

Perishable Materials

Of the early writing materials the most common were birch bark, Palm-leaves, cotton cloth, silk and skin. Birch bark better known as Bhurjapatra was the most popular of all early Indian writing materials. It was nothing but the inner bark of the tree called Bhurja that grew plentifully in the Himalayan region. Birch bark was cut into pieces of different dimensions, generally "one yard long and as broad as outstretched fingers of the hand or some what less" according as the writer required and liked. In order to make its writing surface hard and smooth it was rubbed with oil and polished and then written upon with a reed pen and ink specially prepared for this purpose. Such leaves were then held together with a string through their middle portion which was usually left unwritten. The compact book was then fastened to two wooden boards which not only protected its leaves but also served as its get-up.

Birch bark was used not only for writing books and long documents but also for conducting correspondence including love-letters the reference to which is found in the 1st canto of *Kumarsambhava* by Kalidasa where it is written that the celestial damsels used to write love-letters with ink made of a metal-solution on birch bark

spotted like the skin of an elephant.[1]   Reference to its use in India
is also found in Alberuni's India.

The earliest specimen of writing on birch bark is the famous
Dharmapada written in Kharosthi script which probably belongs to
the 2nd or 3rd century A.D.   It was discovered in Khotan.   Others
of this category are the famous Bower and Godfrey collections and
those of Bakhsali Arithmetic which belong to the 6th and the 8th
century respectively.   A few manuscripts on birch bark belonging to
the 15th or 16th century A.D. have come from Kashmir and found
shelter in different libraries in India and abroad and a few more are
still found in Kashmir, Orissa and other parts of India.

Palm-leaves or Tāda-patra or Tāla-patra

As a writing material Palm-leaf or tāda patra was very popular in
ancient India probably because it was easily available in quantity in
almost every part of the country except in Kashmir and some parts
of the Punjab and Rajputana.   Still it seems that the use of palm-
leaf as a writing material was probably initiated by the people in
the southern peninsula where it was chiefly available in plenty
and gradually its use spread to other parts.   One of the most
ancient Buddhist works—the *Tripitakas* written shortly after Buddha's
death, it is said, was written on palm-leaves.   Such ancient palm-leaf
manuscripts have not, however, survived chiefly because of the Indian
climate.   Of the manuscripts that have survived mention may be
made of *Prajnā-pārmita-hrydaya-sutra*, and the *Usnisavijayadhārini*
which belong to the 6th centnry A.D. and the *Skanda-purāna* which
belongs to the 7th century A.D.   The first two are now housed in the
Hori-uzie monastery of Japan and the other has been preserved in the
Darbar Library of Nepal.   The other datable manuscripts on palm-
leaves known to us are a few fragments in the Godfrey collections
which belong to the 4th century A.D. and the Hrozny MSS which
belong to the 6th century A.D. Palm-leaf had, however, to be
prepared first by soaking it in water and then by drying it in the sun.
It was sometimes three feet long and four inches broad.   But as such
sizes were rarely available, they were used for writing important
books and documents.

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[1] न्यस्ताचरा धातुरसेन यत्र भूर्जेवच: कुञ्जरविन्दुशोण: ।

बजन्ति विद्याध्रब: सुन्दरीव्याम् अनङ्गलेखक्रियोपयोगम् ॥

The use of palm-leaf as a writing material, however, declined only with the introduction of paper ; nevertheless it is used even now in the country-side by the beginners in the primary schools for writing the alphabet and by the petty village traders for keeping simple accounts.

Cotton and Silk Cloth

Cotton and silk cloth had also been in use in India for writing purposes since ancient times. It was then called 'Pata' or 'Patikā'. A silk band containing a list of Jain sūtras written with ink was discovered by Bühler at Jasalmer and a manuscript of the Jain work *Dharmabidhi* written on cloth dated 1361-'62 A.D. was found by Peterson at Anhilavad Patan. But manuscripts written on cloth or silk cloth prior to this period have not survived mainly because such materials could stand neither the onslaught of weather nor the onslaught of moths and worms.

Skin

As the ancient Indians did not like to write the 'immortal word' on such impure materials like skin except that of tiger and deer, skin was very sparingly used for writing purposes. There is, however, reference to it in some Buddhist works as also in a sanskrit work *Vasavadatta* by Subandhu that skin was sometimes used as a writing material in those days. Though very few manuscripts on skin are found in India to-day, that should not lead us to the conclusion that the use of skin as a writing material was universally condemned. As other writing materials like leaf, tree-bark, cloth etc., were abundantly available, the use of leather was largely disfavoured. About a dozen documents on leather written in Kharosthi were, however, discovered by Stein in Chinese Turkistan which proved beyond doubt that it was used at times as a substitute for other varieties.

Paper

Paper was freely used in India from very early times though none of the manuscripts available can be dated earlier than the 13th century A.D. But in view of the fact that the Indians are known to have been making paper out of cotton since the 4th century B.C., it can certainly be presumed that books were written on it. The evidence of this view is found in the account of Nearchos, a Greek writer who accompanied Alexander, the Great, during his Indian

campaign in 327 B.C. In that account, he stated that the Indians had been making paper out of cotton by pounding. So the theory that paper was first invented in China is not tenable nor can we accept the theory that it was introduced in India by Muslim power. All that can be said is that paper was very sparingly used in those days in view of the availability of other varieties like birch bark, palm-leaf, sachi-leaf etc., in abundance.

It is further said that Maldah, a district in Bengal, was once a centre of manufacture of a kind of hand-made 'Yellow paper' made of cotton (Tulat) which gained great popularity even abroad and captured the market even in the neighbouring countries. Even the English at one time called a kind of Chinese paper by a new name 'India proof'. It will not probably be wrong if we infer from this name that paper reached China from India through some overland trade routes which existed since immemorial times between these two friendly countries. But whatever that might be, doubt still persists in knowledgeable circles if paper had its beginning in China or India.

There is, therefore, still scope of research and investigation in this field left unexplored as yet.

The Scribe and his Implements of Writing

The professional scribe was also an accepted feature of Indian life from the earliest times. He was known as 'Lipikāra' or 'Libikāra' in the 4th century B.C., 'divirapati' in the 7th century A.D. and 'Kayastha' since the 11th century. The pen with which he used to write was known by the general term 'lekhani' which included all instruments of writing such as pen, stylus, brush etc., made of reed or wood, metal and hair or fibre respectively. The pen proper was sometimes called 'varnaka' or 'varnika', the brush was known as 'tuli' or 'tulika' and stylus or 'engraver' as 'salākā'. So far as 'ink' is concerned its use in India can be traced to very ancient times. The account of the Greek writer Nearchos in the 4th century B.C. also suggests that ink was used for writing purposes. Ink was then called sometimes, 'masi' and sometimes 'mela' and the ink-pot was commonly called 'masipātra' or 'masikupikā'. Ink was used not only for writing on palm-leaves, birch bark and paper, but also for painting inscriptions the evidence of which is still found in some painted inscriptions of the Ajanta caves. Ink commonly used was black, being a mixture of powdered charcoal, gum and water. The

better quality was, however, prepared from a solution made by boiling lac, borax, lodhra (a tree having white flowers), lamp-black of sesame oil etc., in water. Of the other varieties of colour red was in common use for aligning margins in the pages as also for marking the end of chapters in the manuscripts. 'Red ink' was called 'alaktaka' or 'alaktarāga' made of a solution of lead or minium in water with resin or some other sticky substance. Gold or silver inks were sometimes used for writing highly expensive manuscripts meant for the wealthy patrons. It is said further that in the absence of ink blood was sometimes used to express fidelity or determination. At any rate it was used on very rare occasions.

Early Writing Materials and the Organisation of Libraries in the Ancient and Medieval World

Libraries are as old as civilisation. But civilisation in its early phase did not spread over all parts of the world all at once. For quite a long period of time it remained more or less confined to certain isolated regions surrounded by naked barbarism.

It was, therefore, natural that libraries first sprang up in those little oases of civilisation in the deserts of barbarism. As man in those civilised spots learnt the art of writing and applied it for recording his war-songs and prayers, sacred legends and lores, the stories of his clan and the achievements of royal dynasties, he also sought to preserve them for posterity in the clay tablets, papyrus rolls, parchment and vellum books and so on in the respective regions. The progress of civilisation and the development of libraries thus went hand in hand even in that remote age of the world's history. The role of such early writing materials as clay tablet, stone, metal plate, papyrus, parchment, vellum, palm-leaf, birch bark etc., was, therefore, no less significant in the organization of libraries in the ancient and medieval world. Their very use was a clear indication that man had by that time leapt out of the valley of darkness and ignorance to the uplands of light and knowledge.

Libraries of the Ancient East : Sumerian, Babylonian and Assyrian Libraries

But at the beginning libraries were attached to temples and monasteries because it was the temples and the places of worship which were the centres of habitation and of social and cultural life in those days. They were later on attached to royal courts and still

later to universities and centres of higher learning. Of such ancient libraries, the library at Tello in ancient Sumeria had a very rich and wide collection of more than 30,000 clay tablets written in 'Cuneiform' that is, 'wedge-shaped' characters by means of stylus made of wood, ivory or metal. This library was established in or about 3100 B.C. during the golden age of Ur. These clay tablets dealt not only with war-songs and prayers but also with agriculture, astrology and politics. Even when Hammurabi shifted the capital from Ur to Babylon in the 16th century B.C. clay-tablets had been still in use in the temple and palace libraries of which the library of Borsippa was the most famous. Assyrian civilisation was next to the Babylonian in antiquity. For centuries Assur was the capital of the Assyrian kingdom until Nineveh was created. The oldest Assyrian library of which we know was in Assur. It was a highly enriched collection of clay books. There was also a library at Nineveh which was started by Sargon and continued by Sennacherib until his death in 681 B.C. It has been suggested that the clay tablets discovered by Layard and other Assyriologists belonged to the library of Sennacherib at Nineveh. His grandson Assurbanipal, it is said, enlarged and enriched the library the strength of which rose at length to more than 20,000 clay tablets covering a wide range of subjects like grammar, lexicography, poetry, history, religion, science etc., all written in Assyrian style. They were not only arranged on shelves for easy consultation but were also furnished with catalogues, the first of their kind in the libraries of the ancient world. The catalogue of this library consisted of lists of tablets arranged according to subject in each cubicle or alcove painted or carved on the entrance, each tablet having an identification tag. This seems to have been a public library—a library open to the community at large since the rooms that contained it were accessible without entering the inner apartments of the royal palace. It is said that the tablets of this library were all copied from those of the library of Borsippa in Babylon by the Assyrian royal scribes. As the library of Borsippa has not survived nor any trace has been found out these duplicates are the only source of our knowledge about Babylonian life. Besides Nineveh, remains of several other libraries have also been discovered in different places like Kish, Panta biblia, Shippara, Ashur, Akkad, Ur. etc., some of which belonged to temples and some to princely courts. Indeed Assyria's greatest gift to posterity was the gift of libraries.

Egyptian Libraries

In antiquity Egyptian libraries came next to the Assyrian. The day of the clay tablet came to an end along with the decline of the Assyrian empire and papyrus which was available in quantity in Egypt began to be used for writing purposes. As in all ancient civilised lands, libraries in Egypt also belonged to the temples. And even though such old manuscripts written on papyri like The Book of the Dead and The Precepts of Ptah-Hotep have been discovered through excavations, nothing certain is known about the libraries of ancient Egypt. All that we come to know of them is from such Greek writers like Herodotus, Plato, Diodorus, Plutarch and others. It is said that books were written on various subjects viz., morals and ethics, Arithmetic and Geometry, Rhetoric and Law, but none of them has survived. It is further said that a library was there at Gizeh in 2500 B.C. According to Diodorus there was also a library at Thebes in 1250 B.C. on the portals of which were chiselled the words "Medicine for the soul." This library seems to have been established by Rameses II. The rolls in this library were preserved either in clay jars or cyclinders with an identifying key word written on the surface of each or on shelves with sufficient indication for their identification. Ruins of some other temple libraries have been excavated—one at Karnak, another at Denderah and one more at Edfu, known as the 'House of papyrus', but not a shred of papyrus has been found in any of them.

Greek Libraries

The ancient Greek civilisation lasted for nearly 1200 years. For more than half the period there was practically no writing. The Greeks learnt the art of writing from the Phoenicians and obtained the idea of book production from the Egyptians. Probably the Greek alphabet was evolved by 800 B.C. But before writing became common there were public reciters or rhapsodists who used to earn their living by reciting legends and myths and sometimes the whole of the Homeric epics. The Homeric epics were, however, first put to writing by some 'unknown revisers' in 550 B.C. Leaves and barks of trees were the earliest writing materials in ancient Greece. Later on in the Hellenistic period wax-covered wooden tablets, parchment and vellum came into common use and libraries were set up. The library system in Greece really began at this period and reached its apex in the age of Aristotle and Plato. Encouragement to learning

and culture was systematically given since then. There were not only private collections but also government and institutional libraries, the library of the Athenian Academy being the most remarkable of them all. Built on the lines of a modern University library this soon grew into a well-known seat of higher learning which drew scholars even from abroad.

It was centuries after that Alexandria in Egypt grew to be the centre of Greek culture where there was a famous library which contained nearly 700,000 rolls including manuscripts from all parts of the known world written in different languages—Egyptian, Hebrew, Greek, Latin and the like. It was the most famous library of antiquity planned and set up in his palace by king Ptolemy II in 283 B.C. and its extension was subsequently made by his son. There were on the shelves of this library the whole of Homeric works, Plato's Republic, the books of Herodotus and Xenophone, the plays of Aeschylus, Sophocles and Aristophanes, Geometry of Euclid and a lot of books on Mathematics, Astronomy and the like which have been entirely lost. Most of these books were written on papyrus and a few on parchment, the use of which had been known to the Greeks for long. This library was partly burnt by Julius Caesar in the year 48 B.C. and subsequently destroyed fully by the Muslim conquerors when they overran Egypt. There were expert copyists who worked in the Alexandrian library under the supervision and control of great scholars and consequently Alexandria grew to be the greatest centre of book-production from where book-sellers distributed the copies of books throughout the world. This library was, however, completely destroyed by Omar, a Muslim conqueror in the year 642. Omar was a great fanatic and a sworn enemy of books, but the argument he advanced in support of his action was irrefutable. If the contents of these books, he argued, were in accord with the teachings of the Koran, they were useless since the Koran itself was sufficient. If, on the other hand, they opposed the teachings of the Koran and encouraged blasphemy, they were definitely pernicious and hence deserved to be destroyed. It is further said that being parsimonious and niggardly by nature he used the books of this library as fuel for nearly six months for the city's four hundred public baths. This is perhaps the most classic example of the suppression of books and learning in recorded history.

Another great library known as the "daughter of the first founda-tion" was soon established in the splendid temple of Serapis, a magni-

ficent building that had hardly any equal in those days except the mighty Roman Capitol. There was still another very famous library, though smaller in size and later in date, which was founded by Eumenes II (197-159 B.C.) at Pergamum "for the delight of all." It is said that this library which contained some 200,000 papyrus books was given by Antony as a gift to Cleopetra. The use of papyrus, however, declined consequent upon an Egyptian official order restricting the export of papyrus and as a result parchment came into greater use for writing purposes.

Roman Libraries

Even after the conquest of the whole of Greece by the Romans Greek remained the literary language. The ancient Romans were great lovers of books who purchased copies from the Alexandrian library and read them with earnest interest and care. Even when Latin literature had its beginning, it was mostly imitative. Latin literature had of course its rich and luxuriant growth, but it did not extend beyond one hundred years. "Between the year 100 B.C. and the birth of Christ, Cicero, Lucretius, Caesar, Horace, Virgil, Ovid and Livy—all lived and wrote and died." Their books were found in the Roman libraries and book shops which were the favourite haunts of the fashionable and learned men. They used to discuss the merits or drawbacks of any book as soon as it appeared from the copyists. These books were written on papyrus, parchment and vellum by means of feather quills. Incidentally our word 'pen' has come from the Latin word 'penna' meaning feather of birds. Advertisement on the outside box of the shop for any book that was either brought out or likely to be brought out had also been in vogue in the Roman world. Books were made either in the form of wax-covered wooden tablets or in the form of rolls and sometimes again in the form of codex.

It is said that Julius Caesar planned a Public library for Rome on a grandiose scale in keeping with his grandeur and majesty and so when Brutus and his fellow-conspirators killed 'the foremost man of all this world', they in fact also killed the project of a Public library. His idea was, however, carried out by Caius Asinius Pollio much later, in the reign of Emperor Augustus. Pollio, as Pliny says, was "the first to make men's talent public property." Augustus himself by following the example of his noble subject established two public libraries, one of which he associated with the name of his sister

Octavia. All these libraries were equipped with cupboards in which there were pigeon-holes in which reposed the rolls or codices. There were as many as twenty-eight public libraries of this kind in the city of Rome alone and the cities and the provinces outside the capital did not also lag far behind.

The era of Roman libraries did not extend beyond 500 years. Most of them were destroyed by the barbarian invasions and some by volcanic eruption of Vesuvius in 79 A.D. Among the ruins of Herculaneum were found the traces of a famous library full of hundreds of charred papyrus rolls in burnt book-cases arranged all around the room. This was a typical Roman library of the time.

Monastic Libraries

With the fall of the Roman empire there came a steady decline in classical culture. Most of the libraries and private collections suffered at this time serious damage and destruction at the hands of hordes and barbarians. The manuscripts both religious and secular that escaped destruction somehow found shelter in the libraries of the Moslem empire and in the monasteries of the Christian monks. These monasteries played a significant role in the preservation and development of literature during the Dark Ages. In the 5th century the monasteries founded by Cassidorus in Italy and St. Benedict in France became the centres of organised manuscript production. Alcuin of York, the celebrated scholar and collaborator of Emperor Charlemagne from 790 A.D. onwards by following in the tradition of Cassidorus also set up a great library at Tours bringing books from different centres of learning to be copied by monks and scribes. Manuscripts brought out by such monasteries were definitely superior to those of classical Rome. They were copied by the monks in a large single room known as scriptorium within the cloister in which silence was the rule and even light was forbidden. So strict were the rules in the scriptorium that none but scribes and high monastic officials could enter it. All work was supervised by a senior monk who supplied the writing materials, apportioned the work, arranged for the loan of books from other monasteries and acted as the monastic librarian. Scribes could not deviate from the text even if there was error. At first individual copies of works were made by individual scribes. But as the demand for manuscripts increased, a method of dictation was adopted, a monk reading out the text and others writing it down. This provided an opportunity to the

monasteries to enrich their own libraries by adding new copies of other works prepared in other monasteries, in exchange of their own.

Such scriptoria formed an essential feature of the monastic libraries throughout the continent during the Middle Ages. The manuscripts prepared and preserved in these libraries covered not only scriptures and theology, but also a wide variety of secular literature like Homeric epics, the poetry of Virgil, the Attic tragedies and comedies, the scientific and philosophical works of master minds of antiquity and they are perhaps the only clue for us to get a glimpse into the ancient word. The materials used by the monks were parchment and vellum, quill pens and different kinds of coloured inks. The nature of the book determined what style of writing it would receive. For example, if it was the Bible or a book of scripture which had a sacred character, it was written in a special style in conformity with its importance. Gradually manuscripts also received the illuminator's art and dedication. Elaborate designs, ornamental borders and even miniature paintings characterised the manuscripts of comparatively later periods. One of such illuminated manuscripts is the Irish *Book of Kells* which was produced in the eighth century. A still more richly written and handsomely ornamented manuscript namely *The Giant Bible of Mainz* was produced in a certain scriptorium in Germany in 1453 by a master scribe nearly seven hundred years after the *Book of Kells*. It was a single venture in which no other scribe had any share or part.

But as manuscript production was a tedious and painful process, early monastic libraries were small and contained few books and kept them all secure by chain either in chests or cupboards or on desks.

Libraries in Ancient China

Though Chinese civilisation is one of the oldest the world has ever seen and the art of writing was known in China as early as the third millennium B.C., no ruins of libraries have yet been found out to testify to the existence of libraries in ancient China. But there are however, certain circumstantial evidences which prove beyond doubt that libraries were not only known but were an indispensable part of Chinese cultural life. For example, a tradition, as it has been preserved in Sree-ma Chien's *Historical Record*, says that the great Chinese philosopher Lao-tse was a keeper of books in a library. The

mention of catalogues of books in another record namely History of the former Han dynasty (206 B.C.—23 A.D.) also testifies to the existence of libraries in ancient China. All these stray evidences lend strong support to the general conviction that libraries were there in every centre of culture in Ancient China.

Literature of Ancient China was of a very high order and the ancient Chinese writer enjoyed a high social status. He used to receive patronage from the royal court, was held in high esteem and sought for advice and moral guidance. But this condition did not last long, for with the beginning of the second century B.C. a vandal emperor Che-Hwang-ti took certain drastic measures in order to suppress the rising tide of literature by burning all books except those on medicine and husbandry. This had naturally suppressed the libraries as well. But that could not make an end of literature and libraries altogether, for the ancient songs and lyrics which were learnt by heart and recited from time to time were put again to writing immediately after the death of that great bibliophobe.

Libraries in Ancient and Medieval India

Nalanda

As in most cases even in India the public reciters preceded the written book by several centuries. Writing started rather too late and the antiquarians believe that it was introduced not earlier than 1000 B. C. of which there is, of course, no sufficient record. Libraries naturally were set up still later. When writing became common, books were written on such materials as stone, metal, birch-bark, palm leaf and sachi leaf and these manuscripts were preserved in libraries then called 'Bagdevi Bhander' attached to temples and monasteries and the houses of the nobles. No positive record tesifying to the existence of libraries prior to 400 A.D. is, however, available. Of the libraries of the Buddhist era the oldest and the most famous was that of the University of Nalanda. The library of this University contained true copies of Buddhist sacred texts and commentaries. It also contained non-Buddhist literature like the Vedas, Sankhya system of Philosophy, Teleology, Philology, Astrology, Agriculture, Medicine etc. Most of these books were written on Palm-leaves and bound in pieces of cloth by means of cords. Excavation of the site has revealed that the library was well planned. It is known from the accounts of the Chinese travellers and pilgrims.

that a large area was apportioned for the library of this University and this area was known as library quarter or "Dharma-ganja". Most of the library buildings were multistoried of which three were particularly famous—'Ratnasagar', 'Ratna-dadhi' and 'Ratna-ranjaka'. The very names of these buildings unmistakably indicate the wisdom of those who thought out this nomenclature. This library was indeed the pride of India which drew scholars and mendicants from far off countries like Ceylon, China, Tibet, Burma, Thailand and others. The books in this library were arranged either on shelves made of stone or of brick and mortar. The scholars used to stay here sometimes for several years not only to read and learn, discuss and discourse, but also to translate and copy out the Buddhist scriptures. It is said that the great Chinese pilgrim I-tsing made transcripts of nearly 400 original Sanskrit manuscripts of this library involving 5,00,000 verses and another named Yuan-Chwang copied out as many as two hundred original manuscripts in order to take them home.

The library along with its parent body—the famous monastery was laid to waste as a result of the Turkish invasion under Bakhtiyar Khilji in the 13th century, the former being completely gutted in fire during this inhuman ravage and carnage leading to an irreparable loss of a great Indian inheritance as well as of human culture.

Valabhi, Vikramshila and Nagarjuna

Libraries in ancient and early medieval India were an essential part of the centres of higher education. That is why most of the universities and centres of higher learning in ancient India were equipped with suitable libraries. We find the evidence of the existence of rich libraries in such higher centres of learning in ancient and early medieval India as Valabhi in Sourastra in the 7th Century A.D., Vikramshila in Central India in the 12th Century A.D., Taxila in the old province of Gandhara (now in West Punjab, Pakistan), in the 3rd century A.D. and the Nagarjuna on the bank of the Krishna in Southern India in the 7th century A.D. and so on. Besides, libraries had also been there in different other famous centres of culture like Benares, Mithila and Nadia. Of these libraries, the library of Valabhi in Kathiawar was as important as that of Nalanda. Among the ruins of this great seat of learning thirty-two copper plates containing royal edicts and land-grants have been found out which clearly indicate that copper was used for writing purposes in those days. It is further said that the entire expenses of this great

institution and its library were borne by the Maitraka kings right up to 750 A.D. The role of Vikramsila in the spread of education and the diffusion of culture was equally great. Though its exact location is not known, it is presumed that it must have been situated somewhere near modern Bhagalpur. The library of this great Buddhist monastery contained a rich and wide collection of manuscripts written in both Sanskrit and Pali. This great Buddhist centre of education with its rich library like other sister institutions of the time met with the same inglorious fate at the hands of the Muslim invader Bakhtiyar Khilji in 1203 A.D.

So far as the South was concerned it did not also lag far behind in the great race of ancient Indian culture the evidence of which has been borne out by the excavations made at Amaravati and Nagarjuna in Andhra Pradesh. These excavations have led to the discovery of the relics of a great Buddhist centre of culture—the Nagarjuna Vidyapeeth named after its illustrious founder Nagarjuna. a 7th century scientist and Buddhist scholar who also founded the school of Mahayana Buddhism. The library of this University was housed on the top floor of its five-storied building named 'Parbata Vihara' and its collection comprised a wide range of subjects from the Tripitakas and other Buddhist scriptures to such useful arts as chemistry, botany, mineralogy, medicine, geography and so on.

Chati Kalasala

We also get evidence of the existence of libraries in India in 1058 A.D. during the reign of Chalukya King Raya Narayana from the records of the Hyderabad Archæological survey. Madhusudana, a famous general of the time founded a public institution named Chati Kalasala which had as many as six big libraries. All these clearly prove that libraries played a very important role in the cultural life of India both in her ancient and medieval periods.

Libraries in the Muslim Era

Even in the Muslim era, library art did not die altogether. For most of the rulers belonging to both Khilji and Tughlak dynasties in the 13th and 14th centuries who were great patrons of art and learning built up personal libraries in their palaces or in the mosques. It is said that the great Muslim scholar Amir Khausru who was also a great poet and a musician was himself a librarian. It is further said that Balban's eldest son Prince Muhammed had a library of

considerable collections. Even the rulers of Bijapur, Golkunda, Gujarat and Khandesh possessed libraries in their respective palaces. But most of those libraries were private collections and as a result none but the courtiers and scholars had access to them.

It was Shaikh Nijam-ud-din Auliya who for the first time in India established a Public Library containing a large mass of manuscripts to which every one had free access. Most of the books at that time were written either on palm leaves or on parchment. Moreover, as book production was a laborious process books were both rare and costly and hence the scholars and learners had to seek access to the private collections of the Princes and the nobles.

There are a number of manuscripts written in Arabic, Persian, Urdu and other languages in the library of the Victoria Memorial, Calcutta. Among the Arabic manuscripts is a Quoran trascribed by Aurangzeb himself. Of the Persian manuscripts the most notable are Diwan-i-Amir Khusrau which is believed to be the oldest copy of Khusrau's work, Firdausi's Shah Namah and a copy of the Ain-i-Akbari all written on imported European Paper. The library also contains some manuscripts of the Moghul Imperial Library because it was, after the Sepoy Mutiny, sold as prize property, most of the manuscripts being bought by the Nawab of Murshidabad whose family later on presentbed them to the Memorial in 1904.

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PAPER

Fire in each eye and papers in each hand,
They rave, recite, and madden round the land.

—Pope

Paper—Its Short History

Like all objects of antiquity paper has also a fascinating and exciting story to tell and the story is rather old, though not as old as that of other writing materials of yore. For the introduction of paper was itself an improvement upon other varieties which needed in course of time a suitable substitute for a variety of reasons. Nevertheless paper is of a great antiquity. Its very name has a distinctive Egyptian flavour. For the word 'paper' has come from the Egyptian 'papyrus', though papyrus, as we have seen, was no genuine paper. The real paper came into use only in the early part of the 2nd century A.D. and tradition says that it was invented in China. It is said that in about 105 A.D. the invention of paper was first officially reported to the Chinese emperor by a courtier named Tsai-Lung. He is therefore, regarded as the father of the invention of paper in Chinese history. The Chinese kept the secret to themselves for quite a long period of time. But the secret somehow leaked out from Korea, then a Chinese province. It is said that Dokyo, a Buddhist monk who carried the secret with him from Korea introduced it into Japan in 610 A.D. and was handsomely rewarded for it. He later on rose to be the physician to the Japanese empress. But while paper was made of rag in China, in Japan it was manufactured from the bark of mulberry trees.

The next country to acquire the secret was Turkestan. In 751 A.D. a battle took place between the Chinese and the Turks which resulted in the defeat of the former and the capture, at the hands of the Moors, of quite a large number of prisoners of war among whom there were several paper-makers. These paper-makers were forced into work and with their help the first paper mill was set up at Samarkand in 751 A.D. and another at Baghdad in 793 A.D. Here paper was, however, made of linen-rag and was

therefore, both fine and lasting. The Moors also zealously guarded the secret and practically enjoyed the monopoly of paper-making till the middle of the 12th century. It was with the growth of Muslim power and civilisation that paper started moving to the West by crossing the Mediterranean and the first country in Europe to welcome it was Spain, where the first paper mill was established at Toledo in 1150 A.D. Paper then travelled to Italy and in 1276 a mill was established at Fabriano. Oriental paper did not bear watermark so long. It was in Italy that the water-mark and glue-sizing processes were invented which were introduced into oriental paper nearly two or three hundred years later. By the end of the 14th century paper was manufactured in France and by 1405 in Flanders. The next country to receive the art of paper-making was Germany. Ulman Stromer, a German merchant who had learnt the art of paper-making during his trade visit to Italy established the first Paper Mill at Nuremberg in 1390.

Still the spread of paper was slow and until printing was invented paper was not made in quantity. The first paper mill in England was set up in Hertfordshire in 1495 with royal aid by John Tate, son of the Lord Mayor of London. The art of paper-making thus reached England towards the close of the 15th century. The water-mark Tate used in his paper was an eight-pointed star inside a double circle. But Tate's adventure in paper-making ended in financial failure. For nearly hundred years since then there was practically no paper-making in England. It was in 1589 that paper-making was resumed by John Spilman, jeweller to Queen Elizabeth when he was granted a ten-year monopoly of paper-making and rag-collection by a royal charter. He was a successful paper-maker who enjoyed exclusive monopoly of paper-making in England till his death. Paper-making remained totally suspended during the period 1646-1665 when England had been in the grip of the Civil War and the Plague. It was again resumed by the company of White Paper Makers sometime in 1686. It received further boost when Henry Portal, an emigrant from France installed his paper-mill in England and got the privilege of supplying the paper for the printing of the Bank of England notes. His firm holds that privilege even now. Soon there appeared in the field another notable figure—James Whatman who established his famous Turkey Mill near Maidstone and started exporting hand-made paper even to the Continent by 1775. His

name is still famous in the trade because of his company's manufacture of very fine and lasting writing, drawing and accounts-book paper.

But inspite of the growing popularity of paper it could not oust parchment and vellum from the field altogether. This was because the clergy who looked upon it as a pagan product discouraged its use and desperately clung to parchment and vellum. But people gradually came to realise the advantages of using paper. Paper was cheaper and lighter than parchment and vellum and in its better quality it was as tough as the latter and hence despite the opposition of priests paper gained popularity throughout the continent.

Paper Making in Modern India

After a lapse of several centuries the manufacture of paper received a new boost in India at the hands of the Muslim rulers. Though it is difficult to say with certainty as to who among them actually initiated this art, it is generally supposed that a Muslim ruler of Kashmir first introduced paper sometime between 1420 and 1470 and, it was mainly due to his efforts and initiative that the first paper mill was established at Nausera which is still one of the greatest centres of paper-making. This trade then gradually spread to other places like Sialkot, Lahore, Delhi, Mathura and Multan and still later to other parts of the country like Bengal and Hyderabad. But what is surprising is that the Hindus scrupulously avoided this trade for long because they did not like even to touch such unclean and profane things as rags, waste cloth etc., the basic materials of paper-making and consequently the Muslims enjoyed the monopoly of paper-making until the European Missionaries penetrated into this art. Just as printing from movable type in this country was initiated by European missionaries so also early attempt at the manufacture of paper was first made by them generally on the coast line of the country where they had their missionary settlements. The first paper mill was, therefore, established near Tranquebar in 1711 in order to produce paper in quantity locally to meet the need of popularising the Bible. This mill, it is said, was driven by cattle. The next paper mill was set up in 1825 at Serampore by Marshman of the Serampore Mission. But neither the paper mill at Tranquebar nor that at Serampore was a financial success and hence they had been soon closed down. Paper-making was resumed further in 1870 when

a paper mill was established at Bally on the bank of the Hooghly. Since then paper mills began to multiply one after another, one at Lucknow in 1879 set up by Upper India Couper Ltd., another at Goalior in 1881 by the-then Maharaja himself and another still later in 1887 at Poona, which is known as The Deccan Paper Mills. It was in 1918 that the Indian Pulp and Paper Mills first started manufacturing paper with bamboo fibre.

At present there are fifteen paper mills in India of which the Paper Mill at Titagar is the largest.

But though India produces more than a hundred thousand and half tons of paper a year now, she is not still self-sufficient in respect of newsprint. Even the other day she had to rely entirely on foreign imports for this variety. It was only in 1956 that the first mill for manufacturing newsprint was established under the auspices of the Govt. of India at Nepanagar, in Madhya Pradesh, which owes its name to National Newsprint and Paper Mills better known as Nepa mills. This mill produces nearly 25 thousand tons of newsprint which of course fall far short of the nation's demand. We require at least two mills of this kind more to earn self-sufficiency in this regard.

Paper to-day is as essential in our daily life as food and drink. A civilised man cannot do without it even for a day even if he can go on without the latter for a time. It now comes to his daily use in some way or other, whether in the form of a book that he is delighted to read, or in the form of a newspaper or a periodical that he needs must read or in the form of a letter-head he writes upon, for sending a message to one of his friends and relations and so on. In this way paper has now entered into every household and taken its rightful place on the child's desk, on the old man's shelf, under the young lady's pillow, in the scholar's study and the young man's lonely garret. Indeed from the University to the grocer's and the butcher's shop—no place in the world to-day can function without the use of paper. It is now an indispensable constituent of modern civilisation. It is now so extensively used and has become so indispensable an article of necessity in our daily life that we may in one sense call the modern age by a new name—the Age of Paper. But unlike birch-bark, palm-leaf, sachi-leaf etc, paper is a manufactured article of use and not a gift of nature and hence there is no cause for wonder that it is not readily available like other varieties.

Paper—its difference from Parchment and Vellum and its basic Constituent

Paper is a material made of vegetable fibres freely inter-twined with each other in water in such a way that a sheet is formed which can then be written upon. This naturally distinguishes it from parchment and vellum which are nothing but animal skins and from its forerunner—papyrus which is merely strips of a river plant, not disintegrated but dressed, dried in the sun and polished. The fibres are like the 'bone structure' of the plants from which they are obtained and when they are treated with caustic soda in order to remove their juices and natural colour, they are reduced to cellulose which is the basic constituent of all paper-making. The strength and durability of paper naturally depend on the length of the fibres of which it is made and its quality is also dependent on the original material from which its cellulose is derived. That is why we get a strong and lasting paper from cotton and linen rags because they have long fibres which interlock with each other so freely while we get a very poor variety from mechanical woodpulp because it has got very short fibres which cannot matt so easily. In the choice of the materials of paper-making no one quality is enough, taken alone. The fibres must be long, strong, flexible and easily separable from the raw bulk. Moreover, the material must be commercially available in quantity.

Raw Materials of Paper : Rags, Cotton and Linen

The principal raw materials of which paper is generally manufactured are cotton and linen rags, esparto, straw, hemp, bamboo and wood. Of these cotton rags yield by far the purest cellulose and therefore, the finest grades of paper are made from them. Their fibres are nearly an inch long on the average, very fine and strong. Hence rag-papers are very good to write upon, stand a good deal of wear and tear and retain their original colour for years without showing any sign of fading. They are really the most durable of all papers. That is why certain newspapers notably The Times print on all-rag or part-rag paper a special issue for preservation in National and other libraries.

Linen rags yield also pure, high-quality cellulose. Their fibres are as long as cotton fibres but thicker than them. But as linen is very scarce, it is often mixed with cotton for making ledger papers

and thin bank papers, and is hardly used as the sole material of paper-making.

Esparto

Esparto or alfa grass is a strong-bladed grass that grows in North Africa and Southern Spain. As it has very short fibres whose average length does not exceed 1·5 mm paper made from it is neither strong nor durable nor can it retain its colour for long. It has, however, a fine, smooth and clean surface and can be suitably used for writing and printing. It is also suitable for reproducing illustrations by offset litho. If specially beaten it bulks out considerably and is then used in the making of what is called 'Featherweight' paper. It is also chosen for the body of art paper.

Straw

Straw was formerly used only for making cardboards. In the absence of adequate quantity of esparto during the last world war straw came into common use at the hands of the paper-makers for manufacturing ordinary printing and writing paper. As its fibres are short and brittle, paper made from it does not last long.

Hemp, Bamboo and others

Paper made from hemp is thin but opaque and very expensive. It is sometimes used for printing the Bibles and Prayer Books. Bamboo is largely used in India for manufacturing paper. But as its fibres are short and brittle no good paper can be made from it. But manila which has fibres at once long and strong, can produce really tough paper. Besides these, such materials as rope, string and waste papers are also used for making some paper of inferior quality. In the eighteenth century when demand for paper increased experiments were also made with such inexpensive materials as potatoes, beans, cabbages etc., but such substitutes could give no good paper, their fibres being at once short and brittle.

Wood : Mechanical Wood Pulp & Chemical Wood Pulp

But wood seems to be the principal raw material of paper throughout the world. It has fifty-five per cent cellulose content. It is, however, used in the manufacture of ordinary paper. The best fibres are obtained from such trees as spruce, pine and fir, but shorter and weaker fibres are obtained from such trees as poplar and others. While the fibres of the former are like those of cotton,

the fibres of the latter resemble those of esparto. But whatever variety may be chosen as the raw material, it is reduced to pulp prior to paper-making. This pulp is of two kinds—mechanical wood-pulp and chemical wood-pulp. Mechanical wood is ground in water into saw-dust instead of being chemically disintegrated and as a result it retains all the impurities i.e., the inter-cellular matter. Hence paper made from mechanical wood lacks strength and turns brown and brittle under long exposure to light. It is, therefore, used only for newspapers and other materials of passing interest. The enormous consumption of paper in the world to-day has brought mechanical wood into use on a wide scale, specially for newspapers and the paper so used is known as *newsprint* in the trade.

Chemical wood, on the other hand, is the better form of wood pulp. Here the wood is first cut into pieces, usually about an inch square. These pieces are then reduced to pulp by boiling them in water with soda or sulphate which removes impurities but keeps the length and strength of the fibres in tact. Paper made from chemical wood is, therefore, comparatively strong and does not fade so easily. Such paper is generally brighter and whiter than paper made of mechanical wood. It is largely used for the printing of every-day books.

Processing of Raw Materials

Rag materials are at first reduced to cellulose pulp from which paper is made. But this involves various processes. As soon as these materials arrive at a Paper mill buttons, fasteners and rubbers are all removed and they are cut into small pieces over a sieve. In order to remove dirt and grit they are then air-dusted. Next comes the boiling process. The chopped pieces of rags are then boiled in water under pressure for several hours and alkalis such as caustic soda or soda ash or lime or the like, is added in order to wash away the colouring and inter-cellular-matter. The rags then go into a machine called 'breaker' or 'Hollander' in which they are washed in water and reduced to pulp. The breaker consists of a tank and a revolving drum, the former being fitted with the latter. The drum can, however, be raised or lowered according to necessity. Now, there are two opposing series of blunt knives—one fixed on the surface of the drum and the other on the bed of the tank and as the drum revolves, the rag materials pass between the two sets of knives and are further broken up and frayed and simultaneously washed by

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a clean flow of water in the machine. At this stage, the materials are reduced to pulp called 'half-stuff'.

The half-stuff is then passed into another machine called 'beater' which resembles the 'breaker' in every part of its construction. If the knives are sharp, the half-stuff is beaten quickly and broken up into fibres of short length and as a result a weak, fluffy and absorbent paper known as Antique or Feather-weight or Blotting paper is produced. If on the other hand, tackles are blunt, the half-stuff is beaten slowly and consequently such hard papers as Bank paper, Ledger paper etc., are produced. The pulp at this stage is known as 'stuff', the working material of the paper-maker. The beating process being over colouring matter, china clay or size may now be added in the 'beater' according to the quality of paper to be made. If the paper is sized in the beater, it is known as 'engine-sized.' If, however, the finished sheet of paper is dipped in a trough of gelatine and alum, it is known as 'tub-sized.' Blotting paper is neither loaded nor sized.

Hand-made Paper

From its invention in 105 A.D. to the year 1798 when machine process was invented by one Nicholas Louis Robert all paper was made by hand. Though most papers are now machine-made, hand-making is still continued in certain mills producing finest grades of paper. Hand-made paper demands greater care and more patience which machine-process does not require. The 'stuff' from which paper is made is then stored in vats. For hand-making the stuff should have a thicker consistency looking more or less like bread-sauce while for machine-made paper the stuff should be comparatively thinner, looking more or less like gruel. The vatman then dips his mould into the vat.

Deckle-edge

The mould is a shallow sieve set in a large wooden rectangular frame longer than broad over the top of which is fitted another frame called 'the deckle' which looks like an empty picture-frame. Its object is to hold the pulp in as also to determine the size of the resultant sheet. Some books are found to have complete 'deckle-edge' even now, because some book-collectors have special fancy for them. The 'deckle-edge' is nothing but 'the rough and wavy edge'

which uncut books possess. This happens due to the overlapping of the liquid pulp against the sides of the deckle.

As the vatman dips the empty mould into the 'stuff' in a vat and lifts it up, he finds it all covered with a semi-liquid pulp. He then shakes it in his hands in two directions—backward and forward and from side to side almost simultaneously. This shake is very important since it causes the fibres in the stuff to interlock in all directions and thus imparts strength to the resulting sheet of paper. That is why Esdaile has said about this shake "It is a very delicate and subtle craft which nothing but the human hand can accomplish."

Laid mould and Wove mould

Moulds again are of two kinds—Laid mould making 'laid paper' and Wove mould making 'wove paper'. The base of the laid mould is formed by a close network of fine wires known as 'laid-wires' which run lengthwise and crossed at intervals of about half an inch by stouter wires called 'chain wires'. If a piece of paper made in a 'laid mould' is held up to light, the lines of the wires can be clearly seen because they are whiter and more transparent than the remaining portion of the sheet. Both laid and chain wires are important because they help a good deal in determining the format of a book, that is, in finding out how many times the sheet has been folded. This pattern can, however, be easily imitated even in machine-made paper by means of a dandy roll.

The Wove mould is one in which the wires forming the base are closely woven as in a cloth. John Baskerville, the famous printer is said to have invented the metal-based Wove mould and it was he who for the first time used wove-paper in his first work, a quarto edition of Virgil in 1757. When held up to light paper made in a Wove-mould shows a faint network of diamonds all over its surface. This is because the wet pulp gets thinner wherever the wires occur. Wove paper has also a smoother and more even surface than laid paper.

The mould covered with the liquid pulp then goes to the coucher who lays the still wet sheet on a felt—a woollen fabric and covers it with a second felt so that the two neighbouring sheets may not stick together. In this way when a pile of alternate felts and sheets is built up he then places it in a press to squeeze out water. The layerman then separates the sheets from the felts with as much care

as possible so that they may not tear off. After pressing the stripped sheets again for some hours to remove water from them he then hangs them up in a loft to dry.

But paper, though now dried, is still absorbent like blotting paper and hence it needs *sizing* to get a non-absorbent surface. The dried sheet before *sizing* is known as *waterleaf.* The sheets are, therefore, dipped in animal gelatine to give them non-absorbent surface. They are again dried, smoothed and glazed.

Watermark

In paper we often see a design or a device in transparent lines which goes by the name of water-mark. This is made in the paper by twisting and soldering the wires of the mould in the form of a design or a pattern. It is generally found at the centre of one half of the sheet and one can see it clearly if one holds the sheet up to light. It is particularly useful in determining format, in dating an undated work and so on.

Machine-made Paper

Machine-made paper has now almost driven out hand-made paper from use for ordinary purposes of book production. In the early days of machine-made paper 'wove paper' was generally machine-made and 'laid paper' hand-made.

The manufacture of paper by machine does not require as much skill and care as paper-making by hand does. Nevertheless it can produce a fairly durable material. The machine by which paper was first manufactured is called the Fourdrinier which was first patented in 1798 by one Nicholas Louis Robert, an employee in the French Publishing House owned by Francois Didot, but it was first put into use in England. Similar other machines appeared in the field later on. One of such new machines was invented in 1809 by John Dickinson, an ingenious English manufacturer. This machine had a cylinder covered with a woven metal screen revolving in a chest of stuff. Pulp in this machine was first kept near the screen by means of vacuum suction within the cylinder and then carried to another cylinder covered with felt. He is said to have also patented a more satisfactory paper in 1817 for copper-plate printing and introduced silk or cotton thread for the manufacture of paper, a device still used in bank notes.

The Fourdrinier, the first paper-making machine which revo-lutionised the trade consists of two parts. The first part of the machine contains a 'stuff chest', a 'feed box', strainers or squeezers and an apron cloth. The second part of the machine consists of an endless moving band of wire mesh. The method of manufacture is as follows :

The stuff is run in the 'stuff-chest' which can store nearly half a ton at a time from which it passes to the 'feed box' in which it is reduced to a liquid state by being mixed with water. This material then passes under strainers or squeezers to be free from grit and knotted fibres and then under an apron cloth which brings it to the second part of the machine i.e., the band of wire-cloth. As the wet stuff moves along the endless band of fine wiremesh, the fibres inter-lock and as a result water drains through the wire cloth. There are, however, two endless rubber deckle straps on both sides of the band of wire mesh which move along with it. Their purpose is to prevent the pulp from running off the sides of the band of wire mesh. While the pulp travels along the band of wire mesh, it is, however, mecha-nically shaken from side to side in imitation of the vatman's hand. This causes the fibres to interlock only in one direction and as a result machine-made paper is strong only one way. The newly formed web of paper still wet then passes under a 'dandy roll', a hollow cylinder upon which a device in the form of water-mark is worked in relief. This device was patented in 1825 by John and Christopher Phipps. As the web of paper passes under the dandy roll, the design or the watermark is impressed upon it. If necessary, chain lines and wire lines and even wove effect of hand-made paper can be artificially produced on machine-made paper by this method.

The paper thus made passes further through three Press rolls and then again it travels along an endless band of felt, a closely matted fabric of wool made by pressure of drying cylinders, to be fully dry. It is then wound round a reel.

As regards finish this can be done in a variety of ways. Papers can be either *machine-finished* or *super-calendered* or *machine-glazed*. Machine-finished paper requires no further treatment and as such, is directly sent for use. But papers that require a still smoother surface are passed through a supercalender machine that has eight to twelve rollers arranged one below the other, those in the middle being

covered with cloth or paper and the rest heated in steam. The pressure and heat of the rollers thus impart to the resultant sheets a very fine and smooth surface, a gloss and a sparkle. On the other hand papers of which one side requires smooth surface and the other remains comparatively less smooth are passed through a machine called Machine Glaze. This machine has a large cylinder having a diameter of nine to ten feet which, when heated in steam, serves the purpose of both drying and smoothing down the sheets. Paper is sometimes also coated with some chemical or mineral substance in some special kind of machine.

Difference between Hand-made and Machine-made Papers

(1) Machine-made paper is an endless web of paper which has got no definite length. Its width is determined by the size of the machine. But hand-made paper has a definite length and a definite width, because the mould in which it is made determines them both.

(2) Hand-made paper is more durable ; it is stronger than machine-made paper because the fibres are integrated in all directions as a result of sideward, forward and backward shake by the vatman. If we tear off a piece of hand-made paper and drop it into water, we see that the piece of paper contracts in all directions while if we drop a piece of machine-made paper into water, we see that it contracts only in the direction in which the machine shook i.e., it contracts along the two edges across the web.

(3) Hand-made paper is the most durable of all papers. It is also difficult to tear it because of the interlocking of the fibres. Machine-made paper, however tough and durable, cannot attain the measure of strength of hand-made paper.

(4) Hand-made paper has wire-chains or the wove effect in more transparent lines because they are made by the mould from beneath its surface while in the machine-made paper of similar imitation, we see the same from above, because the "dandy-roll" often successfully imitates it by giving pressure from above and not from beneath.

(5) Hand-made paper is generally thicker towards the edges of the sheet because the vatman cannot always take the equal amount of pulp necessary for each sheet. But machine-made paper has a uniform consistency of thickness all over its surface.

(6) As the sheets of hand-made paper differ from each other in

respect of thickness, they create some difficulty during printing. But machine-made paper is free free from this defect.

(7) A crease in machine-made paper is more prominent than that in hand-made paper because the latter is thicker than the former.

(8) Owing to the relative weakness of machine-made paper in one direction it should not be folded along the flow of the web. But it does not matter which way hand-made paper is folded because the paper is strong in all directions.

(9) Hand-made paper requires more time to be made than machine-made paper and on that account the latter can be produced in greater quantity than the former.

Difference between Durability and Permanence of Paper

Percy Freer in his *Bibliography and Modern Book Production* makes a distinction between durability and permanence. Durability of Paper depends upon the capacity of the paper to retain its original qualities under continual usage. This should not be confused with the permanence of paper which is nothing but the degree to which paper resists chemical action which may result from the impurities in the paper itself or from agents from the surrounding air. The essential thing for the permanence of paper is that it should have close texture and be compact. The factors making for permanence are

(i)   quality of the materials used
(ii)   length of the fibres
(iii) the way in which they are integrated.
(iv)   chemical purity.

Durability of Paper

As a rule hand-made paper is stronger and therefore, more durable than machine-made paper. But there is no reason why machine-made paper should not be as lasting as hand-made paper if the same kind of pulp as is employed in hand-making be used in the machine-process. In fact the durability of paper depends not so much on how it is made as on what material is used. That is why Dard Hunter has said that "the preparation of the stock rather than the method employed in its formation influences the life and durability of paper, be it by hand or by machine".[1] Paper practically started to deteriorate in respect of both quality and permanence since

[1] Dard Hunter. *Paper Making*, 1947.

the introduction of such raw materials as esparto, straw, mechanical wood pulp etc. Papers made of such materials are bound to show signs of decay because the fibres of esparto and straw are very short while mechanical wood is practically saw-dust and hence papers made from them cannot but be weak and brittle and turn brown too soon. The introduction of power in 1798 also contributed no less to its deterioration. Hence papers made before the introduction of power into this industry retained their strength and durability for long without showing any signs of decay. It was since the beginning of the 19th century that paper began to decline in quality though it gained in large-scale production. Consequently experts and enthusiasts applied their minds in this regard to find out the causes which contributed to the deterioration of paper. The causes to which it is due are as follows :

(a) Some of the paper-making machines damage the fibres during the process of manufacture.
(b) Paper made by machine obtains strength in one direction only in which the fibres interlock as a result of the shake of the machine in that direction.
(c) Excessive bleaching damages the fibres.
(d) Excessive mineral loading also causes decay.
(e) Fibres of straw and esparto are very short and mechanical wood, ground up as it is, has no length of fibre and hence they produce inferior paper which fades rapidly.

The raw materials of paper may, however, be classified into four main groups in order of permanence : (1) Cotton, flax and hemp (2) Chemical wood (3) Esparto and straw, and (4) Mechanical wood. Paper made from cotton, flax and hemp is the most durable of all papers. Next to it in respect of permanence is the paper made from chemical wood. But the worst variety is made from mechanical wood which is, therefore, used for printing matters of passing interest. This was how the Special Committee of the Royal Society of Arts set up in 1898 classified the raw materials of papers in order of durability. Even the Committee set up by the Library Association of England in 1930 approved of the above classification and recommended two grades of durable paper according to necessity :

Grade I : It is all-rag paper made by hand or machine. If absolute permanence is desired, paper should be made of white, creamy or unbleached linen or cotton rags of best quality without

any mineral matter being added in loading and it should be hand-made and tub-sized with gelatine. Pulp of this paper should also be free from bleaching residues and so it should be washed properly.

Similar paper may also be produced from the above materials by machine and it can be either tub-sized or engine-sized. Paper of this category whether hand-made or machine-made will be more or less permanent though machine-made paper will be less durable than the other.

Grade II : If, however, relative permanence is required and a commercially competitive price is necessary, it should be all-chemical wood paper, machine-made and engine-sized, in which alum and iron salts should be as minimum as possible and resin content and mineral matter should be proportionate. The pulp of this paper should also be fully washed to free it from bleaching residues. This paper is normally used for printing works of more than passing interest i.e., for printing every day books.

How to test the quality of Paper

The knowledge of the substances of which paper is made and of the processes by which it is manufactured is now regarded absolutely necessary for a librarian because without it he cannot determine its quality. There are now various tests by which the quality of paper can be ascertained. They are as follows :—

(a) If a piece of paper be held up to light and found to have some stain of rind or fibre, the paper is undoubtedly of an inferior quality.

(b) If a piece of paper, when tapped with fingers, produces a rattling sound, it indicates that the paper is both strong and durable.

(c) If we touch a piece of paper with our tongue and feel that it is equally smooth on both sides, we may conclude that it will be lasting.

(d) In the same way if we drench a corner of a piece of paper with the slaver of our tongue and see that it has remained still unimpaired, i.e., it has neither swollen nor become weak enough to get easily torn, we may safely conclude that the paper is hard-sized and therefore, strong and lasting. On the other hand if it gets fluffy and easily torn, when soaked, it is undoubtedly soft-sized and hence weak and fragile.

(e) If a piece of paper be rubbed between the finger-tips and takes long to get rent, the paper may be taken as strong and lasting.

(f) Paper made of mechanical wood is, as a rule, weak and feeble. The way to judge whether it is made of mechanical wood or not is to drop a few drops of acid-compound made of three-fourths of Nitric acid and one-fourth of Sulphuric acid on a part of a sheet of paper and see if the portion so treated at once turns dark brown. If it does so, the paper may be taken to be made of mechanical wood. If, however, the paper is made of a different material, no such thing happens. When dry, it may at best take a grey tint, but it will never turn dark brown.

Some special kinds of Paper

Apart from ordinary papers there are also some special kinds of Paper either made of some special materials or given some special kind of finishes. Such papers as China Paper, India Paper, Japanese vellum etc., are made of some special materials while Antique or Feather weight paper, Art paper etc., are given some special kind of finish.

(i) **Japanese Vellum** :—This is no vellum but a kind of Paper. This is called Japanese vellum because it is made of a kind of shrub that grows in Japan and its surface is smooth and creamy-white like vellum's. This paper is both fine and strong but its surface is so delicate that it cannot survive the use of india-rubber. Imitation Japanese vellum is also available, but it lacks the merits of the original.

(ii) **India Paper** :—It is a thin, soft absorbent paper of Chinese or Japanese origin which is used in taking the finest proofs called India Proofs, from engraved plates. It owes its name to the Indies which in the past meant the whole of Asia where this paper had its rise. It is thoroughly made of rags and rendered opaque by judicious loading. This paper is thin but tough and is used for printing the Bible whence it has got a new name—Bible paper by which it is sometimes known. The Clarendon Press managed to secure a small consignment of this paper from the East as far back as 1842 and used it for printing books. The Wolvercote Mills then successfully imitated this paper in 1875 and manufactured it in

quantity. As this paper is only one-third as thick as ordinary paper, it is popular for private use and very suitable for printing Pocket editions. It is not at all suitable for public library use since its thin leaves are likely to stick together and the uneducated people are often found to turn over pages by licking their fingers.

(iii) **China Paper :**—It is a kind of paper made in China from bamboo fibre. It is a fine, soft brownish paper which gives fine impressions of engravings. It is sometimes known as rice paper.

(iv) **Ramie :**—It is a plant of the nettle family long cultivated in China. As it is a fine material, paper made of its fibre is normally used for bank-notes. It is also used for textiles, gas mantles etc.

(v) **Antique :**—Though known by the name 'Antique', this paper has little resemblance to old paper. In its extreme form it is called Featherweight. It is a very rough paper and is very light compared with its bulk. As beating is carried out quickly with sharp knives and little loading is used during its manufacture this paper lacks strength and possesses a fluffy surface which absorbs dirt easily.

(vi) **Featherweight :**—It is generally prepared from esparto which is chopped up rapidly with sharp knives in the beater and passed under the dandy and between the Press rolls in such a way that a slight pressure is imparted and as a result, the wet sheet remains half felted and full of air. Such paper is naturally loose and fluffy in texture, very light for its bulk and lacks strength and flexibility. As this paper is very rough and puffy, it picks up dirt easily, often clogs the type in the printing press, occupies needless space on the shelf and is easily cut by the binding thread. Even a small book when printed on this paper assumes the look of an important tome and hence the publishers find it convenient to charge double its normal price. Some publishers favour featherweight antiques for printing children's books though they know quite well that such paper cannot withstand the rough use which a child's book is likely to receive.

(vii) **Art Paper :**—It is a paper of very poor quality, its basic material being a web of esparto which is not loaded but coated with China clay, satin white or pearl hardening. These substances which are coated on the surface of the web are mixed with such adhesives as glue or casein or gelatine and are then compressed on to the

surface of the web by rolls. As an adhesive casein is much better than gelatine because the former is insoluble while the latter often sets up decay. Two sides of this paper require to be treated at two different times. This paper has a dazzling, shiny surface necessary for printing fine half-tone blocks. It however, suffers from serious drawbacks and hence it is unsuitable for public library use. For example, as China clay absorbs water, two leaves of art paper are apt to stick together and as it is coated, a single fold is enough to crack its coated surface. Moreover, plates on art paper also crack almost fully at the sewing.

(viii) **Imitation Art Paper :—**As this paper is made in imitation of art paper it lacks the virtues of the original but has all its disadvantages. As this paper is heavily loaded and not coated with China clay, satin-white etc., its surface is not as smooth as that of art paper and consequently it cannot produce fine half-tone blocks.

(ix) **Supercalendered Paper :—**It resembles imitation art naper and is generally used for books in which fine line-blocks or half-tones are included in the text. This paper is given a smooth finish by passing the web through heated rollers under heavy pressure. As the surface of this paper is very glossy, its use in a book causes discomfort to the eye.

(x) **Mould-made Paper :—**It is a machine-made paper bearing the characteristics like feathery deckle edge of hand-made paper. Though it is not as strong as hand-made paper, it is often used as a substitute for printing a limited number of special editions for which hand-made paper is considered indispensable.

(xi) **Blotting Paper :—**It is a kind of unsized paper for drying ink. As it is not sized, it is very soft and absorbent. Blotting paper of superior quality is generally made of cotton and hemp and it can suck up not only a considerable quantity of wet ink but can also absorb it rapidly. Its cheap variety is, however, made of chemical woodpulp.

(xii) **Grained Paper or Patterned Paper :—**When the surface of paper is to be given the stain or grain somewhat resembling that of leather or wood, the paper, as it comes from the machine, is passed between the rollers engraved with the grain or the pattern. This is known as Grained Paper or Patterned paper. If linen or crash

pattern is desired, the rollers may be wrapped with the material itself. Such papers are generally used for book jackets or bindings.

(xiii) **Poster :**—It is a cheap variety one side of which is made smooth while the other side remains rough and harsh to the touch. Its chief use lies in advertisement.

(xiv) **Bank Paper :**—It is a kind of writing paper which is generally used for writing letters or for making letter-heads and bank cheques.

(xv) **Bond Paper :**—It is also a kind of unglossed paper which is used for typing as also for writing letters and correspondence.

(xvi) **Newsprint :**—This paper is made largely of woodpulp usually known as mechanical wood. It is unsized and hence absorbent. It lacks strength and turns brown and brittle under long exposure to light. It is, therefore, used only for printing newspapers and other materials of passing interest.

(xvii) **Ledger Paper :**—It is a heavy writing paper. As this paper is made wholly of rags and is perfectly sized, it is tough, strong and durable. It is, therefore, used primarily for making books of account, cash books etc.

(xviii) **Tissue-paper :**—It is a kind of thin, soft, unsized, white or coloured semi-transparent paper used for wrapping or protecting delicate articles, engravings in books etc.

(xix) **Cartridge Paper :**—It is a light-coloured, strong paper originally manufactured for making cartridges. Its surface looks like that of good antique, but is harder. It is thick and rough and is used for drawing as well as for making strong envelopes.

(xx) **Synthetic Paper :**—This is an artificially made paper sometimes called 'Syntosil'. It is both durable and beautiful to look at. Water which is a great enemy of paper cannot do any harm to synthetic paper. Its durability increases if water is poured on it. It is used for book jackets, card folders, folders for motor licence and identity cards. Things which are frequently handled are generally made of synthetic paper today.

(xxi) **Marbled Paper :**—It is a kind of paper which is generally

used as end-papers by binders. The origin of this paper is still obscure, but it seems that the Persians were the first people to use it in their books.

Besides all these there are Manila and Chromo and different kinds of boards used for different purposes.

Size of Paper

As regards size of paper this is also very much important to both printers and bibliographers and hence a discussion on this point is very much needed. For it is on the size of paper that the quantity of paper needed for printing a book as also the actual shape a book finally assumes when folded in a folio or a quarto or an octavo etc., depends.

Since the early days of printing till our own time paper of varying sizes has been in use. In England in the 16th century printed books were often referred to as 'large folio' or 'small folio' meaning thereby that the former was printed in large sheets measuring approximately $15'' \times 20''$ and the latter in smaller sheets measuring nearly $12'' \times 16''$. There were also other sizes, but they were very rarely used. But whatever might have been the sizes of paper, they had no recognised names in those days. The modern names denoting the size had entered into common use since the close of the 17th century. When we now refer to such names as foolscap, crown, demy etc., we at once understand their sizes, i.e., papers measuring $13\frac{1}{2}'' \times 17''$, $15'' \times 20''$ and $17\frac{1}{2}'' \times 22\frac{1}{2}''$ respectively.

In modern times, however, even much larger papers are used in printing than in the remote past. Papers double or four times and sometimes eight times the basic size are now freely used so that more formes can be printed at a time. Hence besides foolscap, crown etc., we have now double foolscap, quad foolscap (i.e., quadruple), double crown, quad crown etc. The size of double crown is $20'' \times 30''$, the size of quad crown is $30'' \times 40''$ and so on. Such sheets when folded in octavo do not, however, give a larger octavo page size, but enable the printer to print two or more formes at a time. The different sizes of papers commonly used in book-production in full sheet and when folded in quarto and octavo are as follows :

	Full sheet	Double	Quad (quadruple)	Page of 4to	Page of 8vo
Foolscap	$13\frac{1}{2}'' \times 17''$	$17'' \times 27''$	$27'' \times 34''$	$8\frac{1}{2}'' \times 6\frac{3}{4}''$	$6\frac{3}{4}'' \times 4\frac{1}{4}''$
Crown	$15'' \times 20''$	$20'' \times 30''$	$30'' \times 40''$	$10'' \times 7\frac{1}{2}''$	$7\frac{1}{2}'' \times 5''$
Large post	$16\frac{1}{2}'' \times 21''$	$21'' \times 33''$	$33'' \times 42''$	$10\frac{1}{2}'' \times 8\frac{1}{4}''$	$8\frac{1}{4}'' \times 5\frac{1}{4}''$
Demy	$17\frac{1}{2}'' \times 22\frac{1}{2}''$	$22\frac{1}{2}'' \times 35''$	$35'' \times 45''$	$11\frac{1}{4}'' \times 8\frac{3}{4}''$	$8\frac{3}{4}'' \times 5\frac{5}{8}''$
Medium	$18'' \times 23''$	$23'' \times 36''$	$36'' \times 46''$	$11\frac{1}{2}'' \times 9''$	$9'' \times 5\frac{3}{4}''$
Royal	$20'' \times 25''$	$25'' \times 40''$	$40'' \times 50''$	$12\frac{1}{2}'' \times 10''$	$10'' \times 6\frac{1}{4}''$
Large Royal	$20'' \times 27''$	$27'' \times 40''$	$40'' \times 54''$	$13\frac{1}{2}'' \times 10''$	$10'' \times 6\frac{3}{4}''$
Imperial	$22'' \times 30''$	$30'' \times 44''$	$44'' \times 60''$	$15'' \times 11''$	$11'' \times 7\frac{1}{2}''$

As regards ordinary papers 24 sheets as a rule form a quire and 20 quires form a ream. In the case of printing paper, there is a slight departure from this, for a ream of printing paper consists of 516 sheets i.e., $21\frac{1}{2}$ quires and sometimes of 504 sheets or 21 quires. Both hand-made papers and art papers are, however, sold in reams of 480 sheets.

The substance of paper is normally determined by the number of pounds a ream of paper weighs. Quad crown which measures $30'' \times 40''$ generally weighs anything from 50 to 120 lbs. per ream. If paper is, however, very hard, it is naturally heavier than the softer varieties. Hard and dense paper is generally found to weigh from 80 to 120 lbs. while light and soft paper weighs anything between 50 and 90 lbs. Art paper, however, weighs more than ordinary printing paper because its surface is coated with China-clay etc.

Calculation of Quantities

Then comes the question of calculation as to how much quantity of paper is generally required for printing a certain number of copies of a book in a particular format on papers of a particular size. R. B. Mckerrow has drawn a formula in this regard which may be followed to our advantage. In the case of an octavo book printed on quad paper, the total number of reams required for 1000 copies will be according to him, as follows :

$$\frac{\text{Number of pages of the book}}{32} = \text{reams of paper needed for 1000 copies.}$$

This formula also enables the publishers and the printers to calculate the quantity of paper required even when the book of a different format is printed on papers of a different size. For example, if the

paper used be 'double' and not 'quad' or the book be in quarto, the number of reams required for printing 1000 copies will in either case be double. Conversely, if the paper used be "double quad" or the book be in sextodecimo, the number of reams required for printing 1000 copies will, in each case, be just the half.

A few concrete examples are, however, given below in order to give some idea as to how calculation is made in this regard. If a book of 288 pages (including preliminary pages) in 8vo is to be printed on quad crown paper, the total quantity of paper required for 1000 copies will be as follows :

$$\frac{288}{32} = 9 \text{ reams.}$$

In the same way if a book of 360 pages in 8vo is to be printed on 'double quad crown' the total quantity of paper required for 2500 copies will be :—

$$2 \cdot 5 \times \frac{360}{32} \times \frac{1}{2} = 14\frac{1}{16} \text{ reams.}$$

If, however, 500 copies of a book having 288 pages are printed in quarto on 'double demy paper', the quantity of paper needed for such printing will be :—

$$\frac{1}{2} \times \frac{288}{32} \times 2 \times 2 = 18 \text{ reams.}$$

Similar other examples may be provided, but that is probably useless.

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THE ROMANCE OF WRITING

With the art of writing, of which painting is a simple,
an inevitable and comparatively insignificant corollary,
the true reign of miracles for mankind commenced.

—Carlyle

The history of literature really began long before man learned to write. Primitive men who were mostly hunters danced in joy round their camp-fire after the defeat and slaughter of their enemies. They yelled and shouted as they danced and in course of time their shouts entered into a harmony and caught the measure of their dancing feet. Probably in this way the first war-song came to be sung. But literature in the form of prayer came still later, for until and unless man could solve the baffling problem of food and shelter he had no leisure to apply his mind to anything else. It was only when he had sufficient surplus food and security of life and property that the idea of God or of gods dawned on his mind and prayers were framed. Gradually these songs and prayers became traditional and were repeated from one generation to another, each succeeding generation adding something new. Gradually there appeared other types of literature like myths, legends aud ballads.

The origin of myths and legends is still more amazing. The prehistoric man living a hard life in a bewildering world had to be confronted with certain queer phenomena which he could not ordinarily explain. Unlike modern man he had no sense of superiority to other creatures and so he began to believe that all living creatures had souls and even the inanimate objects had distinct personalities. And with this knowledge he set out to solve the puzzling problems that confronted him. The answer to these questions naturally took the form of stories which were then called myths and legends. These myths formed the basis of literature and were concerned with the creation of the universe, with the sun, the moon and the stars, with death and finally with the romance of sex-love and the relation between man and woman.

So far as ballads and folksongs are concerned they were the first artistic expression of emotion and were thus the beginning of all poetry. The myths and legends apart, the biographies of the national heroes, the history of their clans and families were other topics which the first literary men profitably exploited by means of popular songs. These songs soon drew popular favour and unforgettable as they were, they were handed down from one generation to another, thus sustaining the imaginative mind of men in all ages. The folk-songs that we hear even to-day in the country are, therefore, nothing but an 'immemorial inheritance'. In this way quite a long period of time of oral transmission had passed and writing in any form did not appear until man became civilised enough to appreciate its necessity. Writing, in the words of David Diringer, is, therefore, "the graphic counterpart of speech, the fixing of spoken language in a permanent or semi-permanent form". This naturally proves that culture which has been described as a communicable intelligence would not have survived without writing. Indeed all human activities that led to the growth of culture such as poetry, philosophy, history, religion, law, trade etc., which depend upon a degree of permanence and transmission would have been incalculably restricted if writing was unknown. It is, of course, impossible to say with certainty when and where writing was first invented. All that can be said with certainty is that there is no evidence to prove that any complete system of writing was employed anywhere before the 4th millennium B.C.

But whatever that may be, it seems likely that writing in the first phase of human civilisation had purely utilitarian purposes to fulfil. As man grew a little more civilised, he was in one sense compelled to discover some method of writing for three urgent needs. In the first place, he could not afford to forget certain things which had, therefore, to be recorded. Secondly, he had at times to communicate with persons who were at a great distance and thirdly, in order to protect his own property he had to mark his own things like the cattle, sheep, horses, canoes and the like in some distinctive manner. So man had to evolve the art of writing and once he had evolved it and made it known, he used it for preserving his war-songs and prayers, the legends and myths. But it does not mean that all the people in that remote age could write or read what was written. The number of such persons was as insignificant as possible,

The earliest form of graphic expression known to the world was in the form of drawings on the walls of a cave and carvings on small objects. These drawings and carvings were not any self-conscious expression of an artist craving the appreciation of his fellow men, but they were a direct and spontaneous expression of a concrete idea meant to be conveyed to another either for the fulfilment of a need or for the indication of a desire. Most people believe that this is the most rudimentary stage of true writing and the first important step beyond embryo-writing. We come across such beautiful and impressive prehistoric paintings on the walls of caves at Altamira in Spain and Lascaux in France. This form of picture-drawing was the earliest form of writing and is perhaps the progenitor of all systems of writing. A study of the world's earliest scripts also seems to bear out this presumption. The Aztecs of Mexico, the early inhabitants of China and the evidences of the city civilisations of Mohenzodoro and Harappa—all have early records of pictographic writing, not to speak of the supreme example of the Egyptians. Even in India writing really reached a high level of excellence in her neolithic age. The copper and clay tablets stamped with seals of various animals and inscribed in an unknown pictographic script found some time back in Mohenzodoro and Harappa bear an eloquent testimony to the excellence of the old Indian civilisation. But wherever such writing might have first appeared, the natural development of pictographic writing was from such simple drawings of concrete objects to a simplification of such drawings to the extent of creating symbols for the very pictures that were drawn. We find evidence of such writing in various countries. For example, Fu Hai, a great Chinese emperor who is supposed to have invented writing in China in about 2800 B.C. planned eight symbols for earth, water, wood, heaven etc. which undoubtedly give a clue to the vast picture-writing of the Chinese language.

Though there are no true lines of division, the long history of the development of alphabet may be divided for convenience into four well-marked stages such as (a) The Mnemonic (b) The Pictorial (c) The Ideographic and (d) The Phonetic.

The Mnemonic

Evidently this was used as a device to aid the memory. At this stage some tangible object was used as a message, or for record,

between people at a distance and sometimes for sending out a
messenger with official credentials or authority. In course of time
this turned to be symbolic to a degree.

Though this device was almost widespread, it was first used
more elaborately by the ancient Peruvians. They used 'quipus'
or knotted cords for such purposes as reckoning, keeping the
annals of the empire, registering details of the army, transmitting
orders to different parts of the empire and so on. A 'quipu' con-
sisted of a main cord to which were fastened thinner cords at definite
distances, each cord being of a different colour and knotted in a
different way. Each colour had its own significance and different
knots—single, double, two double etc., signified different figures.
According to 'The Shu-king', a sacred historical record of the Chinese
people knotted cords had also been in use in ancient China before
the invention of writing. Similar mnemonic devices were used by
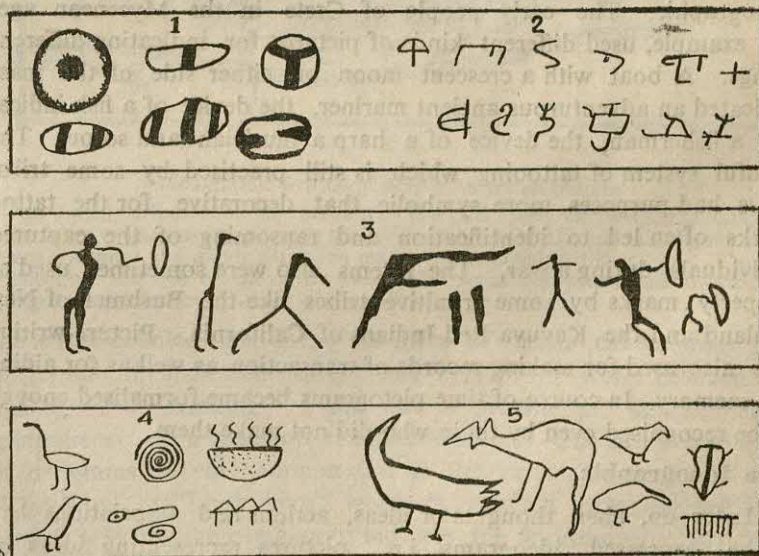
Specimens of Different Stages of Writing

Iconography :   (1)   Painted pebbles of the mesolithic Azilian culture.
                (2)   Geometric signs from Spain.
                (3)   North African rock paintings.
                (4)   Petroglyphs from California.
                (5)   Petroglyphs from Australia.

the primitive men in Tanzania and the Ryukyu islands. The ancient North American Indians, it is said, devised what is called *Wampum* —a collection of shells having different colours woven into their belts round their waists, each differently coloured shell indicating a different meaning. The notched sticks used by the natives of Australia were also memory aids of similar nature. The evidence of this mnemonic device is still found in the rosary or beads on which a Roman Catholic or a Hindu saint counts his prayer and in the knot which most men tie in their handkerchiefs even now to help a weak memory.

The Pictorial

Writing at this phase consisted of pictures of objects called Pictograms which at a glance suggested the names of things they stood for. When the ancient men felt the need of identifying their personal as well as tribal property, particularly in land and livestock, they had to employ various characters more or less pictographic. The early people of Crete in the Mycenean age, for example, used different kinds of pictures for indicating different things. A boat with a crescent moon on either side of the mast indicated an adventurous ancient mariner, the device of a fish indicated a fisherman, the device of a harp a musician and so on. The painful system of tattooing which is still practised by some tribal races had purposes more symbolic that decorative, for the tattoo marks often led to identification and ransoming of the captured individuals during a war. The totems also were sometimes used as property marks by some primitive tribes like the Bushmen of New Zealand and the Kavuya Red Indians of California. Picture-writing was also used for making records of transaction as well as for aiding the memory. In course of time pictograms became formalised enough to be recognised even by those who did not make them.

The Ideographic

Later on, when thoughts or ideas, actions and associations had to be expressed, ideograms, i.e., pictures representing ideas or thoughts, actions and associations were evolved. That is to say, pictures at this stage became fully representative or symbolic and as a result their meanings became comparatively obscure to most men except to those who initiated them. These pictures did not describe the objects they symbolised but merely suggested them. Col. Mallery

has, therefore, justly remarked in his *On the pictographs of the North American Indians*—"The symbols of the ark, dove, olive branch and rainbow would be wholly meaningless to people unfamiliar with the Mosaic or some similar cosmology, as would be the cross and the crescent to those ignorant of history". Notwithstanding this, there were some conventionalised signs which were not difficult to interpret. Among the ancient Red Indians, for example,

Ideographic writing of North American Indians

Seven Indian tribes sent this petition to the U. S. Congress for fishing rights in some lakes. The lines connecting the eyes and hearts of the animals signify their oneness of aims and minds with their leader (represented by the crane). The line connecting the eye of the latter with the lakes and that which runs towards the Congress, indicate the demands of the tribes.

the arrow denoted 'an enemy', a piece of maize cake coming out of the mouth indicated 'eating', the symbol for water between the lips signified 'drinking', a hill and a grasshopper represented a 'chapultepec' or 'a grasshopper hill' and so on. One of the examples of ideograms still in common use is the 'Printer's hand' meaning "This Way" or "Look here" which is used in a massive building with its labyrinthine passages to indicate the location of a particular office room. Ideographic signs were, however, less numerous, than pictograms.

The Phonetic

Next to the Ideographic stage was the Phonetic in which symbols expressing the sound of objects or ideas called Phonograms were used.

Phonograms were quite numerous in the ancient Mexican script. In one of the ancient manuscripts known as Le Tellier Codex the name of a Mexican king Itzcoatl is found to be represented by 'a serpent with stone-knives upon its back' because the Aztec words 'coatl' and 'itzli' meant 'serpent' and 'knives' respectively. Thus in phonetic writing different signs or phonograms were used representing sounds of the objects or ideas described or said. For example, the picture of a saw and the sea indicated "saucy", the picture of an inn and spire could be read as 'inspire', and so on. This is a kind of writing known as 'rebus', an enigmatical representation of an idea or a thing by pictures which is not different from phonetic writing. The Phonetic system in course of time made a further advance towards the final alphabetic stage.

Egyptian Writing

The existing monuments of the Egyptian system of writing contain ample evidence that at its beginning the method was purely a pictorial one. That is to say, things were not represented by their names, but by their forms. For example, a man was represented by the figure of a man, a king was represented by the figure of a man wearing the symbols of royalty, the act of running was represented by a running figure, the act of praying by a kneeling figure and so on.

Even when abstract ideas had to be expressed, the purpose was effected by simple forms of objects used as symbols. Thus in expressing the divisions of time, for example, the moon was used to denote a month while a Palm-leaf signified a complete year because the palm-tree was believed to have put forth twelve leaves a year. The idea of the soul was expressed by the figure of a heart because, the heart was considered to be the seat of life. Similarly the idea of knowledge was denoted by a roll of papyrus, the idea of justice was indicated by an ostrich feather because these feathers were supposed to be of equal length, a priest was represented by a jackal because he was as watchful as that sly creature, the mother by a vulture because the vulture was believed to have nourished its young ones with is own blood, power or authority by a brandished whip, industry by a bee and so on.

In the Egyptian system the first modification of the pictorial objects occurred to express the sounds of a language when it became

necessary to express the name of a thing and not merely the thing itself. We have seen that in the earliest period a king was merely the crowned figure of a man. But to express the name of a native or a foreign king sounds became important. For example, Ahom/rhe which was the name of a king was expressed by the pictures of an eagle and the sun, because the first part of the word meant an 'eagle' and the second the 'sun'. Then again, in an inscription of Ptolemy XV at Edfu the name of Lapis Lazuli has been represented by the figure of a man stopping a pig by pulling at its tail because Khestab which was his name meant 'stop-pig'. ('Khesf' meant 'to stop' and 'teb' meant a 'pig'). Similarly the name of the greatest of the Egyptian gods Osiris which in Egyptian is Hesiri was represented by 'a figure on a seat' and by 'an eye' because 'hes' in Egyptian language meant a 'seat' and 'iri' an 'eye'. These names are, therefore, to be read not according to sense but according to the sound of the words. All these clearly show that the Egyptians were using a hieroglyphic writing which was made up of pictograms, ideograms and phonograms as early as 3000 B.C. Egyptian writing consisted of three groups of characters : (i) Hieroglyphic. (ii) Hieratic and (iii) Demotic.

Hieroglyphic

'Hieros' in Greek means 'sacred' and 'glypho' means 'to carve'. 'Hieroglyphic' therefore means sacred characters in picture-drawings. There were such seventeen hundred hieroglyphs used by the ancient Egyptians for writing purposes. They were called hieroglyphs because they were believed to have been used solely by the priests. Hieroglyphs were used mainly for monumental writing. Hieroglyphic writing consisted of formalised pictures of men, animals, birds, household objects, tools etc., representing pictograms, ideograms and phonograms and this had been the mode of writing in ancient Egypt for a period of nearly three thousand years down to the Roman era.

Hieratic

The term 'hieratic' has come from the Greek 'hieratikos', which means 'sacerdotal' or 'priestly'. This writing, as its name implies, owes its origin to the priests who employed it for copying literary

composition. It was in fact 'an abridged and conventionalised form of the hieroglyphic' written in cursive i.e., running hand. The earliest known specimen of hieratic writing is a papyrus which describes the chronicles of the reign of King Asa whose date is about 3580 B.C. Another valuable document of hieratic writing is the 'Papyrus Prisse' or the Precepts of Ptah-Hotep, now in the Bibliotheque Nationale. It is as old as 2700 B.C.

Demotic

The word 'demotic' has come from the Greek word 'demotikos' which means 'of the people'. This naturally denotes the class by whom this writing was employed. This came into common use in or about 900 B.C. and continued to remain in use right up to the 4th century A.D. Evidently this was used by the common people for humdrum work in everyday life.

The Birth of the Alphabet

The birth of the Alphabet was one of the greatest and most momentous inventions of the human mind. It was, however, no product of an accident, but the result of successive devolpments. It is indeed possible that in Egypt hundreds of years passed between the picture-writing of the hieroglyphics and genuine alphabet signs. It is said that in Egypt there had been in use nearly four hundred verbal phonograms and syllabic signs from which the Egyptians of remote times selected at the outset only forty-five symbols for alphabetic use which in course of time became further reduced to only 25 letters. But the ancient Egyptians did not profit much by their discovery. Instead of passing to the use of fixed signs for certain sounds, the scribes still continued to use hieroglyphs. They fondly clung to them because they regarded hieroglyphic writing as a branch of decorative art. Secondly, as the Egyptian scribes in those days were masters in the craft of writing, they wrote in a style which was clearly a mystery to the people. It was indeed as unintelligible to people as modern medical prescriptions in Latin are to most men except to the physicians and pharmacists. As this writing was done in running hand, none but the priests and scribes could read them. Lastly, it seems that the Egyptians resented too much lucidity and hence they desired that their writing should be kept veiled in obscurity. Now, whatever might be the reason the Egyptians did

not use their alphabet for a long period of time even though they had been virtually in possession of it for almost countless ages.
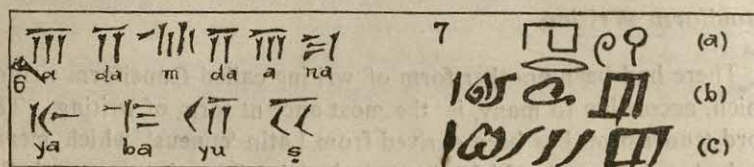
Cuneiform Writing

There had been another form of writing called Cuneiform writing which, according to many, is the most ancient form of writing. The word 'cuneiform' has been derived from Latin 'cuneus' which means 'wedge' and 'forma' which means 'shape'. Sometime around the middle of the 4th millennium B.C., the early Sumerians began to use a kind of writing which gradually developed into 'Cuneiform'. Sumer, the land of the Sumerians which lies between the Euphrates and the Tigris in Modern Iraq was the cradle of the world's earliest civilisation and her people, highly gifted as they were, introduced a full system of writing for the first time in the world which was therefore, her greatest gift to mankind.

It is of course difficult to say when this Sumerian script originated, for the early Sumerian script bears a close resemblance to Egyptian hieroglyphic writing as also to the Indus Valley script.

In its early stage the Cuneiform writing was not wedge-shaped at all, but was a kind of picture-writing. This is evident from the tablets and fragments inscribed in a crude pictographic script found at Uruk, that is, in modern Warka (the Biblical Erech) in Iraq, early in the present century, which represents the Sumerian script. Gradually the pictures became simplified and still later they became linear, that is, they were written in simply drawn lines. Still later they were written or inscribed at an angle of ninety degrees. These rotated symbols were those which were eventually conventionalised into what we call 'Cuneiform'. This was written from left to right into soft clay with the edge of a broad-headed stylus made either of hard-wood or of bone or metal. By the middle of the 3rd millennium B.C. this writing of the Sumerians was taken over by the ancient Babylonians and the Assyrians, and as a script it reached its perfection at the hands of the Assyrian royal scribes whose calligraphy is superbly beautiful even to modern eyes. The Chaldean clay tablets discovered by Sir Henry Layard and other Assyriologists are written in Cuneiform characters, each character being composed of a wedge or a combination of wedges. These clay tablets were a

part of the library of Sennacherib at Nineveh in the 7th century B.C.

Non-alphabetie system of writing

6. Cuneiform writing (inscription of king Darius).
7. The word sign for 'day' in (a) hieroglyphic, (b) early hieratic and (c) late hieratic.
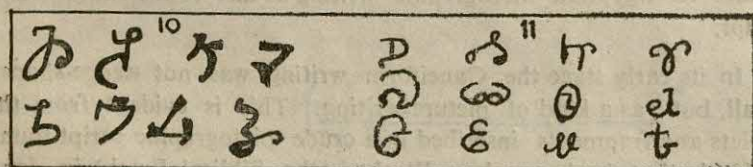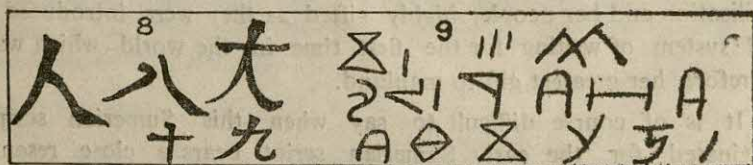
8. Modern Chinese characters.   9. Pseudo-Hieroglyphic script of Byblon.
10. Japanese characters.   11. Cherokee Syllabary.

The March of the Alphabet

It is of course difficult to say with certainty whence the alphabets of the civilised world were derived. However it seems likely that the alphabet was taken over from Crete, an island in the Mediterranean by the Philistines who settled on the southern coast of Palestine, the area between Gaza and what is now Tel Aviv. in about 1200 B.C. From them it passed to the Phoenicians who were their near neighbours, if not their kinsmen. It was from the Phoenicians that the alphabet was quicky transmitted to Greece and thence to Europe. This is the view held by Dr. A. J. Evans. Prof. Spiegelberg, however, does not think that the Phoenician alphabet is of Egyptian origin, though he also admits that "the

development of the two alphabets in some respects is curiously parallel". There is still another opinion held by Prof. Breasted who thinks that the Egyptian system of writing passed into Phoenicia where before the 10th century B.C., it developed into an alphabet of consonants which was quickly transmitted to Greece and thence to Europe. We find support of this view even in Herodotus. Pliny also in his Natural History (Vs. 12, 13) gives the credit of the invention of the alphabet to the Phoenicians. But Dr. Evans' views seem to be based on his comparatively recent experiments on Cretan soil. His discovery of an indigenous culture and nearly perfect method of writing in the island of Crete clearly shows that the Cretans had been in possession of a system of writing even before the introduction of the Phoenician alphabet. We find evidence of this contention even in the account of Diodorus, a contemporary of Julius Caesar and Augustus.

There have been discovered in Crete two sorts of writing : one hieroglyphic or pictographic and the other linear and nearly approaching the alphabet. The former dates from the beginning of the third millennium B.C., and is much older than the latter. Nearly 20 p.c. of the Cretan hieroglyphs approach those of the Egyptian in character and nearly 20 out of 32 linear signs bear close resemblance to the Egyptian. This parallelism naturally points to their Egyptian origin.

But wherever the alphabet might have originated its first importation in modern form was, from the Phoenicians to the Greeks Even if no other evidence was available the very word alphabet, according to Canon Taylor, might suffice to disclose the secret of its origin. For the word 'alphabet' is obviously derived from Greek names of the first two letters—*alpha* and *beta* of the Greek alphabet which are plainly identical with the first two names 'aleph' and 'beth' of the Semitic characters. "These names which are meaningless in Greek, are significant Semitic words, *aleph* denoting 'ox' and *beth* 'a house'. This naturally also suggests that the alphabet was no independent invention but was adopted from another set of characters. It is quite likely that the Phoenicians, a seafaring people who lived in a narrow strip of land between Syria and the sea and who, in the words of Prof. Huxley, were 'colossal pedlars' of the ancient world and who were practically masters of the whole Mediterranean came to know of the Cretan alphabet from which they obtained their own by changing

and modifying their shapes for convenience. But even though the Phoenicians did not invent the alphabet, they changed and moulded it so perfectly that it was accepted by the civilised world of the past and for this service humanity owes a great debt of gratitude to these ancient traders. The Phoenician alphabet was not, however, a complete alphabet because it consisted of only twenty-two letters and had no vowels. Their early writing bore a close resemblance to Hebrew, but they wrote it in a cursive, flowing style.

Greek Alphabet

Before the introduction of writing in Greece there were public reciters called *rhapsodists* who travelled from place to place like a modern theatrical company on tour, and entertained the audience in the open air with a complete recital of the Homeric epics. Writing was introduced much later, not earlier than 1100 B.C. The Greeks, it is believed, obtained from the Phoenician trading posts in the Aegean sea some idea of writing of which they had no knowledge so long. Carthage, the capital of Phoenicia was also the first commercial capital of the world and the Phoenicians who were highly advanced seemed to have first taught the Greeks how to read and write. Jevons in his well-known book *Greek Literature* also supports this view. He says that in about 500 B.C. education was so common in the island of Chios that it was considered to be shameful on the part of any one in Greece not to be able to read and write.

In about 1100 B.C. the Greek alphabet was derived from the Phoenician 'the Greeks taking over not only the entire alphabet of 22 letters, but also their order and names adapted to Greeks forms". Indeed the earliest Phoenician alphabet bears a close resemblance to the earliest Greek alphabet from A to T. The first two signs of the Phoenician alphabet were *aleph* and *beth* and the Greeks who accepted the Phoenician system of writing also called the first two letters of their alphabet *alpha* and *beta*, though they changed alpha to a vowel.

But instead of taking them blindly they, with master-touch gradually added separate letters to represent the vowels, simplified other characters and transposed the Semitic mode of writing from right to left by writing from left to right.

It was from the Greek alphabet again that some other alphabets like the Russian, the Coptic and the Latin were derived.

ALPHABETS OF FOREIGN LANGUAGES

GERMAN		RUSSIAN		HEBREW		GREEK	
𝔄	a	А	a	א	aleph	A α	alpha
𝔅	b	Б	б	ב	beth	B β	beta
ℭ	c	В	в	ג	gimel	Γ γ	gamma
𝔇	d	Г	г	ד	daleth	Δ δ	delta
𝔈	e	Д	д	ה	he	E ϵ	epsilon
𝔉	f	Е	е	ו	vau	Z ζ	zeta
𝔊	g	Ж	ж sh, zh	ז	zayin	H η	eta
𝔥	h	З	з				
ℑ	i	И¹	и	ח	cheth	Θ θ	theta
ℑ	i	I	i	ט	teth	I ι	iota
𝔎	ℓ	К	к				
𝔏	l	Л	л	י	yod	K κ	kappa
		М	м				
𝔪	m	Н	н	כ	caph	Λ λ	lamda
𝔫	n	О	о	ל	lamedh	M μ	mu
𝔡	o	П	п	מ	mem	N ν	nu
𝔭	p	Р	р	נ	nun	Ξ ξ	xi
𝔮	q	С	с	ס	samekh	O o	omicron
𝔯	x	Т	т	ע	ayin	Π π	pi
𝔰	s, ſ	У	у	פ	pe	P ρ	rho
𝔱	t	Ф	ф	צ	sadhe	Σ s, σ⁶	sigma
𝔲	u	Х	х	ק	koph	T τ	tau
𝔳	v	Ц	ц	ר	resh	Υ υ	upsilon
𝔴	w	Ч	ч				
𝔵	x	Ш	ш	שׂ	sin	Φ φ	phi
𝔶	y	Щ	щ			X χ	chi
𝔷	z	Ъ	ъ	שׁ	shin	Ψ ψ	psi
		Ы	ы				
		Ь	ь	ת	tav	Ω ω	omega
		Ѣ	ѣ				
		Э	э				
		Ю	ю				
		Я	я				
		Ѳ	ѳ				
		Ѵ	ѵ				

In the 8th century B.C., the Etruscan alphabet was derived from the Greek and this consisted of twenty-six letters. The Etruscans, the first civilised people in Italy were the predecessors of the Romans and they picked up the Greek alphabet perhaps from Cumae, then a Greek colony near Naples.

Roman Alphabet (Latin)

This is by far the most important of all alphabets because it was the vehicle of both Roman and Greek cultures to western Europe and is still the vehicle of all the cultures of the progressive races of the world. It was the alphabet of the Roman empire and later on of Christendom. The Roman alphabet was, however, derived from the Greek by way of Etruria in the 7th century B.C. The Romans adopted twenty-one letters of the Etruscan alphabet and converted another three into numbers such as theta Θ which became C representing 100 (Centum) ; Phi Φ which became M meaning 1000 (mille), half-phi which became D indicating 500 ; and Khi ($\downarrow$) which became L signifying 50. The Romans also introduced a few more changes. They replaced, for example, the ancient GK zeta by a new letter G (C with the addition of a bar) because Greek *zeta* did not represent a sound of the ancient Latin language, retained Q which was rejected by the later Greeks and sometime after the conquest of Greece in the 1st century B.C. imported from the Greek two new letters Y and Z in order to facilitate the transliteration of Greek words and placed them at the very end of their alphabet. After this the Latin alphabet remained practically unchanged for long. The modern alphabet has come directly from the Latin alphabet of 23 letters to which have been added three more—J, U and W in later periods. J which is the consonantal form of I and U which is the vowel form of V were added to it in the Middle Ages and W which is simply two Vs (W) joined together was added sometime in the 11th century.

The Roman Period

In the early days of the empire the Romans used two sorts of characters—Capital and Cursive which remained in use side by side. The capitals were square-shaped or rustic i.e., slightly ornamented and were used for inscriptions while the cursive or running characters which were very much like English small letters were used for purposes where rapid writing was required. The latter was also known as the Uncial hand in which abbreviations were frequently

employed and the letters ascended or descended beyond the normal height of letters. Out of the Uncial hand came a new variety of hand-writing known as Half Uncial hand in which most of the letters were minuscules and a few capitals.

Offshoots of Greek and Latin Alphabets

Both Greek and Latin alphabets occupy a unique place in the history of writing because they have, through their direct and indirect descendants, become the most fruitful parents of so numerous a progeny in modern Europe. For example, Russian, Serbian and Bulgarian and many languages of U.S.S.R. are written in Cyrillic alphabet which is nothing but augmented Greek alphabet. As regards Latin alphabet it now forms the alphabet of most of the languages of modern western Europe like Italian, Spanish, Portuguese, French and Rumanian. The English alphabet is also a member of the Latin family.

The reason why the Roman alphabet made such an extensive sway is not difficult to seek. The Roman Catholic missionaries either as emissaries of the Pope or as preachers travelled over all Europe and they carried with them Latin, the language of the Roman church which was also the language of culture and higher learning in those days. This language together with its alphabet was, therefore, adopted for learned work and theological texts by the intellectual classes throughout the continent and consequently by the people in later times.

Latin alphabet, in recent times, has been adopted by the Albanians with some modifications, addition of diacritical marks and combination of two consonants for their national language. It also forms the base of most alphabets used for the newly written languages of Africa and Latin America. It also forms the base of modern scientific alphabet.

Rune

The earliest runic alphabet which was most extensively used in various forms by the Scandinavians and the Anglo-Saxons was also formed by modifying the letters of the Roman or Greek alphabet in order that they might be conveniently cut upon wood or stone. This was the earliest Teutonic alphabet which was supposed to have some magical or mystic power. The runes date from at least the second or third century.

C : BTP (III)—7

Development of Figures and the Advent of Arabic Numerals

Before the advent of the Greek and Roman figures there had been however, some primitive methods of reckoning like counting with the fingers, recording by strokes etc., the methods which are still in vogue in many lands for simple enumeration. But these methods had their limits because they proved inadequate and inconvenient for counting larger figures and hence written signs for the higher numbers had to be invented. The ancient Egyptians and the Assyrians, for example, used some special symbols for tens, hundreds and so on, some of which are given below.

The Greeks, however, adopted a more ingenious method by dividing the alphabet into three classes, the first indicating the units ; the second, tens and the third, hundreds. Though the Roman numerals made a little improvement upon the Greek, they also proved inconvenient for calculating larger figures. The Romans called their members *digitus* from which the English word digit meaning 'figure' has come. Indeed all these methods were cumbersome and hence the Arabic numerals received a ready welcome wherever they penetrated.

The Origin of the Arabic numerals which have now gained acceptance everywhere is still shrouded in mystery. It is however,

generally believed that they were of Indian origin. It seems that in course of their commercial and friendly contact which the Indians and the Arabs ever maintained even in that remote age the Arabs came to know of the wonderful Indian numerals, adapted them themselves and introduced them into Spain in the Middle Ages, whence they spread to the whole of Europe, reaching England perhaps in the 11th century. The so-called Arabic numerals proved more convenient than the cumbersome Roman figures and hence they replaced them in almost every country in the continent for counting purposes.

Indeed they made easy and rapid calculation even of larger figures possible in commercial transactions. But more than that it revealed to the world the greatness of human genius which, as Edward Clodd says, "devised the nought or cipher without which the labour of calculation and recording would have taxed energy beyond endurance".[1]

Roman and Arabic Numerals

I=1	XC=90
II=2	XCI=91
IV=4	XCII=92
V=5	XCV=95
IX=9	XCVIII=98
X=10	IC=99
XL=40	C=100
XLIX=49	M=1000
L=50	

Some related terms explained

(1) *Alphabet*—It forms the basic letters of a language, specially arranged in conventional order, each one representing one of the sounds used in a speech. They are symbols of sounds and hence constitute the symbol-base of the language.

(2) *Idiom*—It is an accepted habit of speech, rich with local colour. It gives flavour and subtlety to the language and is hallowed by tradition and usage. It is an expression characteristic of a particular language which cannot be logically or grammatically explained.

[1] Edward Clodd, *The Story of the Alphabet*, (Ch. X, Greek Papyri).

(3) *Dialect*—It is a variety or form of language peculiar to a district or social group. It develops out of the idiosyncrasies of the group or the class using it.

(4) *Etymology*—It is that branch of philology which treats of the origin of words. It gives the full knowledge of a word's history which is necessary for a better understanding of language.

(5) *Script*—It is the mode of writing the alphabets and hence it can evolve.

(6) *Diacritical marks*—They are the marks indicative of modifications of alphabet by certain accepted signs. They constitute accent marks or other symbols which show how a word is to be pronounced.

History of Writing in India

The Palæography of a country is a highly fascinating and instructive study to all lovers of antiquity, for it deals with the art of writing which, as index of culture, differentiated man from animal and provided him with "an instrument for conservation, augmentation and transmission of racial traditions from generation to generation".[1] The invention of writing was indeed a momentous invention because it not only helped man to reach a wider circle of audience but also supplied him with the "the most stable medium of the propagation of knowledge and the diffusion of human culture."[2]

The early history of Indian writing like the early history of India is still in a melting pot and no definite date can yet be attributed to it. This is due to many lacunæ in the history of ancient India and the paucity of materials on the subject. Until recently most of the oriental scholars of Europe were inclined to fix the date of the origin of the art of writing in India in the early centuries of the 1st millennium B.C. because most of them believed that the art of writing could not be known to prehistoric India, then a land of savagery, before the Indo-Aryan invasion which took place in the latter half of the second millennium B.C. Both Max Muller and Burnell held the view that art of writing started in India even later

[1] R. Pandey, *Indian Palaeography*, (Preface, p. vi).
[2] *Ibid.*

than the 4th century B.C. Dr. Buhler, however, did not agree with them ; he was rather disposed to fix the date sometime in the 10th century B. C. But all these views expressed either in the 19th century or in the early part of the 20th do not hold good today in view of subsequent developments. Latest researches into the history and antiquity of Sanskrit language and literature, recent findings dis-closing a new chapter of very close relationship between India and the Western Semitic world now known as the Middle East countries since Solomon's time (10th century B.C.) and the discovery of the relics of the Indus Valley civilisation in 1921 suggest a still remoter date for the origin of the Indian civilisation as also of the introduction of writing. Dr. David Diringer also holds similar views.[1] Writing, according to him, must have been introduced into Aryan India sometime between the 8th century B.C. and the 6th century B.C. and that *the Brahmi script* was much later in date than the Indus Valley script. So far as literary evidences are concerned we may refer to the *Astadhyayi*, a work on grammar written by Panini in the 8th century B.C., the *Arthasastra* of Kautilya which belongs to the 4th century B.C., the Buddhist work *Lalitavistara* which enumerates in its 10th chapter the use of as many as sixty-four scripts, the Jatakas and the two Jaina works—*Somavayanga Sutra* and *Pannavana Sutra* which belong to the 3rd and 2nd century B.C., respectively and a host of other sources, all of which give us authentic information about the high antiquity of Indian writing. Besides, there are also palæographic evidences which are found all over the country and the testimony of foreign writers like Megasthenes, the Greek ambassador, Hiuen Tsang, the great Chinese traveller, Alberuni, the Arab scholar and others, all indicating the high antiquity of the art of writing in India.

In the light of the above literary and other evidences a question naturally crops up—If writing had been in vogue so early, why is it that not even a single specimen of it prior to the 5th century B.C., has been found out anywhere in the country ? The answer to the question is that as in most cases even in India the public reciters and rhapsodists preceded the written book by several centuries ; writing started rather too late and the antiquarians believe that it was introduced not earlier than 1000 B.C. This was because the early

[1] David Diringer, *The Alphabet*, p. 328.

Aryans scorned to inscribe or engrave the immortal word on any transient material and preferred to rely on human memory. Moreover, the system of education in ancient India laid emphasis on learning personally from the lips of the teacher and remembering the text. Even the Vedas were not reduced to writing because a learned teacher who remembered the texts could alone recite them correctly. Besides, to recite them from a manuscript was considered neither desirable nor honourable on the part of a Brahmin scholar. But the fact that the Vedas were not put to writing need not lead us to the conclusion that the art of writing was unknown in the Vedic age, nor should the absence of any monumental writing between the 6th century B.C. and the age of the Indus Valley civilisation be construed to suggest that the art of writing was unknown in India during that period. The truth about it is that writing was used while composing the book and the author memorised the text as soon as it was written, for his personal use as well as for transmission to his students. When writing became common, important documents like royal edicts and proclamations and moral maxims and commandments were incised or engraved on hard materials like stone and metal which have naturally survived long centuries and books were generally written on such perishable materials as inner bark of trees, birch-bark, palm leaf, cloth etc., which, partly on account of their frail nature and partly on account of the Indian climate have perished. This accounts for lack of written documents in India prior to 500 B.C. Hence the early history of India before the 5th century B.C. is still the province of archæology.

Indus Valley Script

Before the discovery of the Indus Valley script most of the Western orientalists believed that the art of writing did not flourish in India prior to the 5th or 6th century B.C. But the excavations conducted by Daya Ram Sahni in 1921 and later on by Madhu Swarup Vats from 1926 to 1934 at Harappa on the bank of the Irabati in the Montogomery district of West Punjab and also at Mohenjodoro on the bank of the Indus in the Lakarna district of Sind by the famous historian and archæologist Rakhaldas Bando-padhyaya, assistant to Sir John Marshall from 1922 to 1931, both now in Pakistan, revealed an ancient civilisation which is supposed to have flourished in India in the 4th millennium B.C., or even

earlier. Most of the scholars and the archæologists consider this date almost conclusive on the basis of the discovery of objects clearly of Indian origin in foreign countries and the discovery of similar objects clearly of foreign origin in India. Marshall is also inclined to date it sometime between 3250 and 2750 B.C.

The earliest known script of India discovered at these two prehistoric sites is known as the Indus Valley script. A large number of clay tablets, stone, copper and bronze tools, elaborately carved stone or ivory seals with mysterious inscriptions, stamp seals with figures of various animals in relief and various other articles at once aesthetic and useful unearthed at the above two sites bear an eloquent testimony to a higher level of civilisation, unparalleled in the world's history, in which the art of writing had already developed. But unfortunately scholars have not been able to decipher these inscriptions as yet.
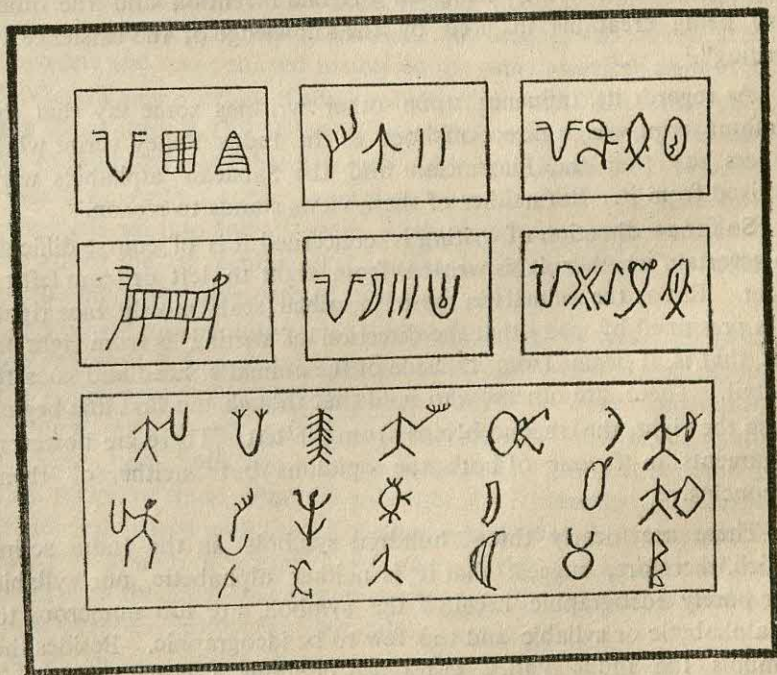
Seal inscriptions and stylised symbols from Indus Valley

As to the origin of the Indus Valley scripts there are a number of divergent and conflicting views. Some scholars believe that the Indus Valley script was pre-Aryan and hence Dravidian while there are others who trace their origin to Sumeria. There is still another group of scholars who think that the Indus Valley script originated in this country and it was introduced by either the Aryans or the Asuras, a people belonging to the same Aryan stock who later on carried it away with them when they migrated to Mesopotamia and other parts of Western Asia. It is not, however, possible even now to say with certainty whether this script was truly indigenous or imported by others. David Diringer suggests two alternatives regarding the origin of this ancient Indian script. He says that either "it was derived from an, at present unknown, early script, which may have been the common ancestor also of the cuneiform and early Elamite writings" or that "all three might have been local creations, one probably the prototype of the cuneiform or of the early Elamite script, being an original invention and the other two being creations inspired by the knowledge of the existence of writing".[1]

As regards its influence upon other writings some say that the Brahmi script was a direct offshoot of the Indus Valley script while others say that the Phoenician and the Sabaean alphabets were derived from it. But neither of these views stands to reason.

So far as direction of writing is concerned it is of course difficult to ascertain whether it is written from right to left or from left to right. But as the animals in these inscribed seals mostly face right, it is presumed by many that the direction of writing is from right to left, that is, it begins from the side of the animal's head and goes to its tail. There are others who hold that though the first line begins from the right, the second begins from the left. There are however, arguments in favour of both the opinions but neither of them is conclusive.

There are nearly three hundred symbols in the Indus script which, therefore, suggest that it is neither alphabetic nor syllabic nor purely ideographic because the symbols are too numerous to be alphabetic or syllabic and too few to be ideographic. Besides the symbols, the Indus Valley script also contains a large number of

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[1] David Diringer, *The Alphabet*, p. 85.

compounds and strokes, horizontal, vertical or slanting added to
the original symbols viz. fish-sign, jar-sign etc., which suggest that
it is neither absolutely pictographic nor absolutely ideographic.
From all these it seems that this script probably belongs to the
'transitional scripts' in which all the three—pictograms, ideograms
and phonograms mingled in a strange harmony and accord as the
rain and sunshine melt into each other to produce the rainbow
effect.

But all these are mere conjectures and nothing certain can be
asserted as yet. When this script will be fully and indisputably
deciphered it will surely produce a greater revolution of thought in
the world of Palaeography.

The origin of Brahmi script

There had been in India two major systems of writing—Brahmi
and Kharosthi of which the first was written from left to right as are
all the modern Indian scripts except Arabic which was introduced by
the Muslim power at a later date and the second was written from
right to left and was confined mainly to the north-western regions of
India for a limited period of time, roughly from the 3rd century B.C.,
to the 4th century A.D. Between these who major scripts of ancient
India Brahmi was undoubtedly much older than Kharosthi. Though
we cannot be certain of the exact date when Brahmi and Kharosthi
were introduced into India it seems likely that Brahmi was introduced
in the 8th or the 7th century B.C,, while the 3rd century B.C. seems
to be the most probable date of the origin of Kharosthi.

The most indisputably datable specimens of writing in India
found engraved in both the scripts are those of Asoka which belong
to the 3rd century B.C., and they are found all over the country
from the Himalayas in the north to the state of Mysore in the south.
This shows how both the systems remained in use side by side at
certain period of time. But the influence of Kharosthi was almost
negligible compared with that of Brahmi which was the true national
Indo-Aryan system of writing. In course of time Brahmi, therefore,
gave birth to the great majority of the modern Indian scripts used by
various linguistic groups for their native tongues.

As its name implies, Brahmi, according to traditional Indian
conception, seems to have come from Brahma who is the source of
all creation. Some, however, trace its origin to the Indo-Aryans

who, in their opinion, invented it for the preservation of Brahma or Veda. Now, whatever might be the exact cause of its nomenclature, the problem of its origin is still controversial and insoluble. Scholars are still sharply divided in their opinion with regard to the origin of the Brahmi script. Some trace its origin to foreign sources while others consider it to be a true product of the soil.

Supposed foreign sources

(1) **Greek origin**—There was a time when most of the European writers were prone to trace anything good or great in India to Hellenic influences. They included even such eminent scholars as James Prinsep, Raoul de Rochette, Otfried Mueller, Emile Senart, Wilson and others none of whom could, however, offer any convincing argument in support of this pet theory. Moreover, neither the Palaeographic nor the literary evidences lend any support to their views. Dr David Diringer, a modern authority on the subject, rather refutes this suggestion when he says—"The Indians came in direct contact with Greek civilisation only after they had long been in contact with other peoples using alphabetic writings ; and the invention of the Brahmi script seems to be at best one or two centuries older than the earliest Indo-Greek cultural relations".[1] Dr. Buhler also held similar views.

(2) **Semitic origin**—Some scholars consider the Brahmi alphabet as a derivation of a Semitic alphabet. But here also a controversy arises as to which particular branch of the Semitic alphabet is responsible for the evolution of the Indian Brahmi ; whether it descended from the Phoenician or from the South Semitic or from the North Semitic or Aramaic.

(i) *Phoenician origin*—Some scholars notably Weber, Benfey, Jensen and others who found a strange similarity between nearly one-third of the Phoenician letters and the earliest forms of the corresponding Brahmi signs believed on that account that the Brahmi was derived from the Phoenician alphabet. But their opinion cannot be accepted in view of the fact that there was no direct communication between India and Phoenicia at the time when Brahmi script made its appearance.

(ii) *South Semitic origin*—Those who thought that Brahmi was of South Semitic origin include such eminent scholars as Canon

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[1] David Diringer, *The Alphabet*, p. 335.

Taylor and Deecke. Their opinion also cannot be supported on two grounds : first, there is hardly any resemblance between South Semitic characters and the Brahmi signs and secondly, even though there might have been some contact between India and the Arab world even in such early times, no evidence of any cultural influence of the latter over the early Indian culture is noticeable until the advent of Islam.

(iii) *North Semitic Source*—There is another school that consider Brahmi to be of North Semitic or Aramaic origin. Dr Buhler is the greatest exponent of this theory.[1] David Diringer, also considers "the North Semitic or the early Aramaic alphabet as the prototype of the Brahmi script".[2] The similarity between the

North Semitic
&
Early Phoenician   Brahmi

Aleph	–	К К	A	–	Ӽ Ӽ
Gimel	–	Λ	Ga	–	Λ
Teth	–	⊕	Tha	–	Θ
Yod	–	⋛	Ya	–	↓
Lamed	–	ᒄVᒑV	La	–	ᒑ
Pe	–	⟩⟩	Pa	–	ᒑ
Shin	–	Ш Ш	Sa	–	Λ Λ

and so on

North Semitic or Aramaic letters and the Brahmi signs and the original direction of the Brahmi characters from right to left like that of the North-Semitic letters strengthened the conviction of both the scholars even though they admitted at the same time that Brahmi

[1] *Indian Palaeography*, pp. 9-11.
[2] *The Alphabet*, p. 336.

was no slavish adoption of the early Aramaic letters and that in the words of A. H. Dani "there is considerable local genius visible in its formation".[1] Dani further says that 'the most fundamental change introduced by the Indians is in giving a definite direction to the letters. The way in which *aleph* is changed into *a*, *lamed* into *la* etc., suggests that Indian Brahmi wns written from left to right from the very beginning".[2]

David Diringer gives further arguments in support of his theory. He says that as the Aramaean traders were the first among the Semites to come in direct communication with the Indo-Aryan merchants, the latter might have borrowed from the former their method of writing. But even though he did not consider the Brahmi as an independent invention of the early Indians, he, however, marvelled at the genius of the early Indian people who 'elaborated to a marvellous extent a loan which they had received from others'.[3]

(3) **Pre-Semitic Cuneiform influence**—There is still another opinion held by no less a scholar than Rhys Davids, the greatest authority on Buddhist literature, who suggested that Brahmi script was derived from the pre-Semitic form of writing namely the Cuneiform used in the Euphrates valley which was the parent of both the North and South Semitic alphabets. But unfortunately his views are shared by no other scholar in the field. Moreover, there is no important literary or Palaeographic evidence to lend support to his views.

Indigenous origin

Doubt still persists in knowledgeable circles whether Brahmi was of Indian origin or imported from further afield and there is no conclusive evidence as yet to decide the issue in favour of either direction.

(1) **Dravidian origin**—One of the greatest exponents of the theory that Brahmi was a local product of the native genius was Edward Thomas who went a step further by attributing its invention to the Dravidians. He believed that before the Aryan invasion of India the whole of this sub-continent was under the occupation of the Dravidians who being much more advanced both intellectually

[1] *Indian Palaeograyhy*, p. 28.
[2] *Ibid.*
[3] *The Alphabet*, p. 337.

and culturally than the early Aryans invented the art of writing which was later on adopted by the Aryan conquerors. But this theory cannot be upheld in view of the fact that no early specimen of writing is found in the South which was the original habitat of the Dravidians while there are so many in the North, the original home of the Aryan immigrants.

(2) **Aryan Invention**—There is still another theory held by such eminent scholars like Cunningham,[1] Dowson[2] and others who suggested for the first time that Brahmi script was an Aryan invention and that it was derived from some pictographic writing in India, quite independent of any foreign influence. Cunningham also explained how the different Brahmi letters were based on shapes of various Indian objects. For example the letter *Kha* has come from 'Khanitr' (spade), the letter *Ya* from *Yava* (barley), *da* from 'danta' (teeth), *dha* from dhanuska (bow), *pa* from *Pani* (hand), *ma* from *mukha* (mouth), *va* from *Vina* (lyre) and so on. Buhler in his 'Indian Palaeography' refuted this suggestion for minimising the importance of the Pictographic evidence still found in some caves of India. Since the discovery of the Indus Valley script this theory has found further support. Hunter observed that the vowel notation of the Indus Valley script connected it with that of Brahmi. This contention is further supported by many Indian scholars like G. H. Ojha,[3] D. C. Sircar,[4] Raj Bali Pandey,[5] and others. D. C. Sircar concludes, "This fact (i.e., writing from right to left) again connects the Brahmi alphabet with the pre-historic writing of the Indus valley from which it was undoubtedly derived". Ojha has substantiated his theory by tracing the concepts of letters, vowels and consonants and even the whole Indian Phonological system which had been in use in the country long before their actual appearance in the written records. He has also traced the grouping of the consonants into *ghosha* consonant, *murdhanya* (cerebral), *dantya* (dental) letters etc., in the *Upanishadas* and the *Aranyakas*. In the *Aitareya Brahmana* the word *Om*, in his opinion, seems to have been formed by the combination of *ukara*, *ukara* and *makara*. Minute description of the

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[1] *Coins of Ancient India*, Vol. I, p. 52.
[2] *J. R. A. S.*, 1881, p. 102.
[3] *Bharatiya Prachin Lipimala*, 2nd ed., p. 6.
[4] *Select Inscription*, Cal. 1942, p. 233.
[5] *Indian Palaeography*, Part. I.

letters, the rules for their combination and the changes they undergo are found in the works of the grammarians of later periods. But what is strange is that grammar preceded the Indian system of writing by several centuries. Alphabetic writing came rather late and we do not get any concrete evidence of complete alphabetic writing in India before the time of Asoka. But the lack of evidence of alphabetic writing before the 5th century B.C. should not lead us to the conclusion that the art of writing was unknown when early Brahmanical literature was composed. Two reasons may be assigned for lack of survival of specimens of writing in Brahmi alphabet prior to 500 B.C. First, the Aryan Brahmin scholars who were more fastidious in the pronunciation of the Vedic mantras laid greater emphasis on phonetic analysis than on actual writing and on memorising the text in a faultless manner. Secondly, they used to write on such transient materials as birch-bark, palm leaf, cotton and silk cloth etc., which, partly due to their frail nature and partly due to the Indian climate, could not survive long centuries. The first of these causes was also corroborated even by the Jaina and the Buddhist writers of later ages.

Even the modern writers who find some Semitic influence on Brahmi alphabet are not absolutely sure whether the Semites brought the alphabet to India or the Indian merchants who carried their own into ancient Babylonia or elsewhere during their trade visits as per the abiding law that 'alphabet follows the trade' just as 'religion follows the flag'. Now, whatever may be the source of its origin the first alternative that it was introduced by the traders from Western Asia into India seems to be unacceptable because "the original impulse for the invention of writing in India was not commercial, as it was in Sumeria or Babylonia, but religious and it is highly improbable that the Brahmins from the cradle of civilisation in northern India picked up the threads of their sacred script 'Brahmi' from the sea-ports of Sindhu and Saurastra".[1] Besides, Ojha has also demonstrated that the differences in the letter-forms between Brahmi script and North Semitic script except in a few cases are so fundamental that the former could by no means be derived from the latter. Though the exact steps are not known it seems likely, according to many Indian scholars, that Brahmi was

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[1] Raj Bali Pandey, *Indian Palaeography*, p. 35.

locally developed out of the Indus Valley script. This view is shared even by such eminent European orientalists as Cunningham and Dowson. Hence the general conception that 'the Indian alphabet is in no respect an independent invention of the people of India'[1] should not and cannot be accepted.

But whatever may be the particular source of inspiration, i.e., whether it was inspired by the Semitic alphabet or was a true native of the soil, there is not even an iota of doubt that it developed very much both philologically and phonetically at the hands of the Aryan Brahmin scholars who soon turned it into the true national alphabet of India.

Kharosthi Script

Its nomenclature : Kharosthi, the second important script of ancient India had nearly half a dozen different names besides the popular one by which it was universally known. As it had been the script of the Bactrian Greek rulers of India which is evident from the coins bearing this script, it was sometimes called Bactrian and sometimes Indo-Bactrian. As the language of these inscriptions was Pali this script was at other times called Bactro-Pali. The 'Kabulian' by which it was also known probably owes its name to Kabul where this script had been in common use. Cunningham, however, preferred to call it 'Gandharian' so as to indicate the whole area comprising eastern Afganistan and northern Punjab of modern times where this script was current. It had yet another name—North-West Indian which probably came from the vast area of its expansion in the north-west regions of the country. But the most familiar name—Kharosthi by which it is largely known seems to have come from two main sources namely *Lalita-Vistara*, a Buddhist work which was composed in the 3rd century A.D. and *Fa-wan-shu-lin*, a Chinese encyclopædia which was compiled in the 7th century A.D.

The meaning of the term

Even though the name 'Kharosthi' was associated with this script from a very early time, the meaning of the term is by no means clear even now. Different explanations have been offered but they are more or less shots in the dark. Some trace the name to a person named Kharostha, the supposed creator of this script. Others think the name had been derived from the Kharosthas, a barbaric people

[1] R. N. Cust, *J. R. A. S.*, XVI, 1884, pp. 325-359.

like the *Yavanas* (Greeks), the *Sakas* and the *Kusanas* and the *Turks*
and the *Tibetans* who lived in the north-western boundaries of India.
According to some other people it is the Sanskritised form of
'Kashgar', a province in Central Asia, where this script had been
in use at a comparatively later period. There are others who think
that the name had been derived from the Indo-Iranian word 'Khara-
posta' meaning 'ass-skin' (Indo-Aryan *Khara* meaning ass and the
Iranian *Posta* meaning skin), the material on which this script was
used for writing purposes. But the most popular theory is that the
Aramaic word 'Kharottha' which was used for this script had
probably through the process of derivation assumed the Sanskrit
form 'Kharostha' in course of time. Now, whatever interpretation
may have been offered with regard to the meaning of this term,
none of them seems to be definite and accurate.

The origin of the Kharosthi script like the origin of the Brahmi
also presents a baffling question on which scholars differ. Because
of its direction of writing from right to left, it is now generally
connected with the Aramaic script which is the main branch of the
North Semitic alphabet. Moreover, as there is a close resemblance
between some Aramaic and Kharosthi characters such as *na, ba, ra*
and *va* and as both the scripts have the common characteristic of
the complete absence of long vowels, it is generally believed that
Kharosthi has probably descended from the Aramaic alphabet.
Besides, there are also some circumstantial and Palæographic
evidence such as the appearance of the Kharosthi script in India
after the Iranian invasion of the country and the discovery at Taxila
of some pieces of stone bearing Aramaic inscription which point to
only one conclusion that it is of Aramaic origin. This is the view of
most of the Western scholars like Taylor, Buhler and Diringer.

This view has, however, been challenged by some Indian scholars
who regard the resemblance between some characters of the two
scripts as very remote and almost accidental and attribute the
absence of long vowels in Kharosthi to other causes. The absence
of long vowels in Kharosthi, according to Dr. R. B. Pandey, is due
to the fact that 'Kharosthi was used for writing Prakrits which avoid
long vowels, big compounds and difficult ligatures',[1] and hence
he concludes that "the so-called common characteristics of the
Kharosthi were due to its popular use and not due to any Semitic

[1] *Indian Palaeographp*, p. 56.

influence".[2] As regards its direction of writing from right to left, he further says that "the leftward movement of writing cannot be regarded as an absolute monopoly of the Semitic people".[3] Indeed in a vast country like India the two systems of writing in two different regions might have been quite possible. There are on the contrary, some evidences too forceful and concrete to be by-passed or overlooked altogether which clearly indicate that Kharosthi was also a product of local genius. For example, complete absence of Kharosthi documents prior to Asokan inscriptions belonging to the 3rd century B.C., in India and even outside the country emphasises its Indian origin. The inscriptions which have been found out in Baluchistan, Afganisthan and Central Asia are clearly later in date and it seems that they were carried there by the early Indian traders and missionaries. Moreover, as no document in Kharosthi has been found as yet in any other region of Central Asia except in the north-west of India, it is quite likely that this script had its rise and growth in that part of the land.

From all these it is evident that Kharosthi originated in ancient Gandhara, that is, in the north-west part of India and it was used to write the local language in which the common people spoke. Gradually Kharosthi attained a great measure of popularity as a script and hence even the foreign conquerors who were eager to establish contact with the local people had to adopt it in their own interest at least in that part of the country. This probably explains why Persian seals were stamped with Kharosthi syllables. Even when the Mauryas established their domination over the north-west regions, they had to adopt it as a vehicle for dealing with their subjects in that part of their empire. Still later the Bactrians, the Parthians, the Sakas and the Kusanas came one after another and all of them had to adopt it for both political and administrative necessity. Kharosthi thus remained in use for nearly 700 years, that is, from the 3rd century B.C. to the 4th century A.D., mainly due to the patronage and support it received from the foreign rulers. With the rise of the Guptas into political power in the 4th century A.D., there was witnessed in the country a tremendous upsurge of unification and nationalism hitherto unknown to the land, which swept away all traces of foreign influence. Consequently Kharosthi,

[2] *India.*
[3] *Ibid.*, pp. 55-56.

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though an indigenous product of local genius, gradually fell into disfavour with the people and lost its native glamour mainly due to its long association with foreign rulers and was ultimately replaced by Brahmi, the true national system of writing in India. The use of Kharosthi might have been kept up by some local people for some time more in different pockets in the north-west of the country but by the 5th century A.D., when the Hunas appeared, no trace of Kharosthi was found. But whatever might have caused its decline and fall it is certain that so long as it had been in vogue, it retained its popularity as a script and unlike Brahmi it ever maintained a uniformity in the forms of the letters which naturally suggests the cultural compactness of the region. But even if Kharosthi was an independent and separate script, the influence of Brahmi over it was by no means insignificant and this influence is particularly noticeable in the evolution of its vowel notation, vocalised consonants and the formation of conjuncts. Both Brahmi and Kharosthi thus remained side by side for some time in two different parts of the country right up to the 4th century A.D., when the latter was completely superseded by the former by dint of its more predominating influence over the whole sub-continent.)

Early Kharosthi Documents

The earliest Kharosthi documents are the rock edicts of Asoka belonging to the middle of the 3rd century B.C., found at Mansehra and Shahbazgarhi in the district of Peshawar near the old Indo-Afgan borders. The next in date are the Indo-Greek and the Indo-Scythian coins belonging to a period varying from 175 B.C. to 100 A.D. Two other Kharosthi documents written on birch-bark have been discovered—one from a Stupa in Afganistan and the other—a Buddhist work named *Dhammapada* at Khotan in Chinese Turkesan, both probably belonging to the 2nd century A.D. A few more Kharosthi documents written on various materials like wood, skin and paper have been discovered since then by Sir Aurel Stein in Eastern Turkestan and they apparently belong to the 3rd century A.D. The latest Kharosthi inscriptions are of course those of the later Kushanas which probably belong to the 4th century A.D.

Modern Indian Languages : Their origin and development

There are at present in India three schools of languages—the Munda, the Dravidian and the Aryan. The Munda language had

once swept the entire country spreading as far as Malaya, Indo-China and then on to the Australian sub-continent. Of course when this happened, the configuration of land and sea was much different. But to-day the Munda language is represented by only a few tribes in the Chotanagpur area. Grierson has given us a fairly comprehensive survey of this school of language.

The Dravidian tongue comprises the modern Tamil, Telugu, Kanarese and Malayalam. There are also some other languages in Southern India like Tulu and Coorgi which do not have any script or any great history, but represent a living dialect born most probably out of the influence of the Dravidian tongues on indigenous speech. Of the South Indian languages, Tamil is the oldest and is coeval with, if not older than, the Aryan languages. But the influence of the Aryan languages on the Dravidian tongues has been profound and many of the religious classics of the north like the Ramayana and the Mahabharata have found triumphant expression in South Indian languages. Not only have these languages been ideologically influenced but the history of their scripts also reveals the Aryan influence. In modern times there has been a self-conscious movement away from the Aryan influence, resulting in an aggressively artificial language consisting of the so-called pure Dravidian words.

The language of the north comprises Marhatty, Gujrati and Rajasthani in the west, Hindi in the middle and Oriya, Bengali and Assamese in the east. There is also the very active Urdu tongue which is the true native of the soil and born out of the long historic connection this country had with its Muslim rulers. Urdu has its Semitic script, but its language has assimilated quite a large number of Aryan words and expressions. It has been said that Khariboli round about Delhi was the protoplasm of the Urdu language.

All the modern Indian languages attained simultaneous development in their various areas from Prakrit which was the parent of them all. Prakrit was originally the spoken tongue of the people as contrasted with Sanskrit which was the specialised tongue of the priestly and the erudite classes. Both Sanskrit and Prakrit existed side by side like the umbra and the penumbra of the shadow. Prakrit developed in comparative isolation, divided from the sister communities by desert, river or mountain into modern Indian languages.

Sanskrit was the most influential tongue for a long time because it was adopted by the most intellectual section of the country.

When this section of the community fell from grace and turned the
sacred responsibilities into grasping privileges, there was rebellion
in men's mind and a new prophet arose speaking the tongue of the
people and challenging the old values. Such is the history of Pali,
the language of the gospel of Buddha, which again in course of time
established itself into another orthodoxy. Thus we see that the
Vedic psalms were no "pastoral songs of a primitive people" nor was
Sanskrit the parent of modern Indian languages. The Vedic Psalms
were written in a highly developed tongue in which there were a
number of dialects one of which on account of political and other
reasons attained greater importance in course of time and formed the
basis of literature of the time. The general wrong conception that
Sanskrit is the mother of modern Indian languages is probably due to
the predominance of too many, almost innumerable Sanskrit words
which have entered into each of them through the ages. Classical
Sanskrit had never been the spoken tongue of the common people.
It was merely the language of literature and learning and the lingua
franca of religion throughout the Indian sub-continent just as Latin
was in medieval Europe and alienated as it was, from the masses, it
turned to be a dead language even before the advent of Buddha. Pali,
likewise, also grew sacred, chaste and artificial in course of time and
became to Buddhism what Latin was to the Roman Catholic Church.
It was the spoken Prakrit, the language of the masses which since the
beginning of the Vedic era had undergone changes through popular
mode of expression in different regions of the country and finally
assumed the forms of most of the modern Indian languages.

Modern Indian language scripts

The story of the development of the modern Indian language
scripts is at once intricate and interesting. From the Buddhist work
Lalita Vistara we come to learn of the presence of sixty-four scripts
in ancient India, particularly in Buddha's time of which a few names
like the Brahmi, the Kharosthi, the Yavanaliya, the Dravidi, the
Nagalipi, the Bangalipi, the Angalipi etc., are quite familiar to us.
We can, for example, identify the Yavanaliya with the Greek script,
the Dravidi with the prototype of Tamil script, the Bangalipi with
Proto-Bengali characters, the Angalipi with the script prevalent in
Anga, that is, in the North-East Bihar and so on. Even in the Jaina
Sutras of the later period we come across such script-names as
Bambhi, Javanali, Kharosthi, Damili etc., which also do not defy

recognition. All these names clearly suggest that side by side with Brahmi which was the principal script of India there had been also some Provincial or regional scripts some of which were either varieties of Brahmi or derived from its prototype and some were quite independent of it.

Brahmi, it seems, it the ancestor of the most of the scripts of northern India. The medieval and modern scripts in northern India arose from the early scripts, particularly from the prototypes of Brahmi and their cursive varieties in different periods ranging from the 4th century A.D. to the 5th. The political and cultural influence the Imperial Guptas exercised over their farflung empire helped the Gupta script spread over the whole of northern India which in turn resulted in the evolution of a great majority of Indian scripts not only in India but also in such places as Kucha and Khotan in Eastern Turkestan.

Tibetan alphabet

The influence of the Gupta character upon the Tibetan alphabet was also by no means insignificant, for even if it was not modelled upon the Gupta character but derived from the Khotanese, as some scholars suggest, it was still Indian in origin, because the Khotanese alphabet itself was an Indian alphabet.

Devanagari script

The most important of all Indian scripts in the Ganges Valley is the Devanagari which probably developed from "Siddhamatrika" or acute-angled alphabet widely current in the region round Kanauj and Varanasi and even in Kashmir during the 6th and 7th centuries A.D.

It is of course difficult to say whether the term 'Nagari' has any relation to 'Nagalipi' as mentioned in the Lalita-Vistara or it simply refers to 'nagara' i.e., cities where the script was used. Its other name 'Devanagari', according to others, is due to the fact that it was used by 'devas', that is, gods and Brahmanas. At any rate the meaning of the term is still uncertain and indefinite.

The development of the Nagari script was rather slow and it took nearly four hundred years to attain maturity. It first appeared in the 7th century A.D. and by the 11th century it became the most predominant vehicle of expression in northern India.

The Devanagari script consists of *forty-eight* signs of which

fourteen are vowels and dipthongs ānd thirty-four are basic consonants known as *aksharas.* When the ancient Brahmin scholars and literary men felt the need of writing they naturally adopted the most sacred characters ready at hand, namely the Devanagari as the vehicle of Sanskrit which had been for long the exclusive literary language of India. Devanagari script is also the vehicle of Hindi which is spoken by the entire population in a vast area lying between the Himalayas in the north and the river Narmada in the South.

Hindustani, a variety of Hindi with an admixture of Persian and Arabic words was carried over the whole of northern India by the Muslim rulers at the end of the 12th century and this is written by the Hindus in Devanagari character and by the Muslims in Persian-Arabic alphabet. Hindi or Hindustani is unquestionably the truly national speech for all India.

Scripts of Kashmir

Siddhamatrika, i.e. Kutila or acute-angled script which had been current for long in Kashmir as alsò in Chamba lying between Kashmir and the Punjab was displaced by Sarada script, a descendant of the Western type of the Gupta character, by about 8th century A.D. The letters of this script correspond with those of the Devanagari script in almost every respect except in their shape which is thicker than that of the Devanagari characters. The Sarada script is generally used by the educated Hindu community while the uneducated people, both Hindus and Muslims, use a variety of the Persian-Arabic alphabet. Kashmiri literature is mostly written in Sanskrit and in Devanagari character.

Scripts of Eastern India

Bengali script. Eastern India comprises a large area covering Orissa and Mithila in the West, Bengal in the middle and Assam in the north-east.

Bengali is a member of the Indic group of the Indo-Iranian or Aryan branch of the Indo-European family of languages. It has gradually shaded off into its sister languages like Oriya and Maithili in the West and into Assamese in the north-east. The Bengali script grew out of the Proto-Bengali character which grew out of a new variety in the 7th century A.D. and became influenced by the Nagari script, perhaps in the 10th century. The Bengali characters became fully developed probably in the 15th and the 16th centuries and since then there had been practically no change in their shapes and forms.

Bengali characters bear the same names, order and number as the Devanagari letters.

Maithili script. Maithili which is the dialect of ancient Mithila is now spoken by the people in Tirhut, Champaran, eastern Monghyr, Bhagalpur and Western Purnia. The Maithili character which is used by only the Brahmins of Tirhut and by people of no other caste is practically the Bengali script but is written in such a style that it is difficult to read it at first sight.

SPECIMENS OF INDIAN SCRIPTS

1. Asokan inscription (Girnar—2nd Rock edict) 3rd Century B. C. Brahmi. Sarvata vijitamhi dēvanari rpi (pri) yasa priyadarisino rano.

2. Asokan inscription at Nepal, 3rd Century B. C . Brahmi devana piyena piyadasina tajina Visativasabhisitena.

3. Asokan inscription (Shahbazgarhi—7th Rock edict) 3rd Century B. C. Kharosti, dēvanam priyo priya [dra] Si raja Savra [rva] tra ichati savra (rva).

4. Stone pillar inscription of Samudragupta at Allahabad. Middle of 4th Century A. D. Script (Gupta) Brahmi of the Northern type.
   maharajadhiraja Sri Samudraguptasya.

5. Stone inscription of Laksmanaraja I, M. P. Middle of 9th century A. D. Script Old Nagari Kasagravad-alako varaha-vyaharah sma.

6. Eastern Brahmi (Kutil lipi) of 6th century A. D. Bengali script has been derived from it.

7. Bengali script of 12th century A. D.

8. Modern Bengali Script.

9. Modern Maithili Script.

10. Modern Kaithi Script (Eastern Purnea variety).

11. Modern Manipuri Script.

12. Modern Gujrati Script.

Assamese script. Closely linked up with the Bengali script is the Assamese character which is nothing but a variety of the Bengali script. Assam has in fact no independent script of its own, but has adopted the Bengali characters with addition of some special signs to represent the sounds *w* and *r*. Even the Manipuri script seems to be a descendant of the Bengali character.

Oriya script. Though Oriya is a sister language to Bengali, its script is different and has nothing in common with the Bengali written character. The Oriya script seems to have been derived from the same source as the Bengali script but subsequently influenced by its neighbouring scripts in the South—the Tamil and the Telugu alphabets. The round shape of the Oriya characters is entirely due to technical reasons.

Nepali script. So far as the writing style of Nepal is concerned it bears unmistakable evidence of the influence of the Bengali script. Both have descended from Proto-Bengali and both bear the common characteristic of having little hooks attached to their letters.

North-Western scripts : *The Takri, the Landa and the Gurmukhi.* Of the scripts current in North-Western India the most important are the Sarada, the Takri, the Landa and the Gurmukhi of which the Sarada is employed in Kashmir, the Takri in all its varieties is used in the entire Himalayan region north of the Punjab, the Landa in the Punjab proper and the Gurmukhi as the vehicle of Sikh religous literature. The Takri, the Landa and the Gurmukhi, appear to be sister-scripts, each having descended either from the Sarada or from some other common source. Gurmukhi, as its name suggests, seems to have come from the mouth of The Guru or Preceptor. Tradition says that this script was invented by Angada, the second Guru of the Sikhs to preserve the Sikh sacred scriptures, written before him in the Landa character, so that they might not be misread. The Gurmukhi is really the polished form of the Landa alphabet with the addition of some extra signs borrowed from the Devanagari character.

South Indian scripts. South India or Dakshinpatha as distinguished from North India or Aryavarta practically comprises the whole of the Southern Peninsula south of the Vindhyas. As the natural inhabitants of the region were Dravidians, the language spoken by them was known as Dravidi or Damili. Dravidian tongues which include to-day nearly twenty languages spoken in Southern India and even in Central and North India form as it were an isolated group having no connection with any other family of languages. Of the Dravidian tongues the most important are Tamil, Telugu, Malayalam and Kanarese, the early history of which is still obscure, because sufficient materials are not available to give a coherent picture of the styles of writing which had been in use between the 4th and 8th centuries A.D.

There are now three main alphabets in Southern India : one for Tamil, one for Malayalam and one with two slightly different variants for Telugu and Kanarese.

Telugu and Kanarese alphabets

The Telugu and the Kanarese characters are the most important of the South Indian scripts which developed in the central and

eastern part and the north-eastern region of South India respectively not earlier than the 4th century A.D. This date is of course based on mere assumption because no record prior to the Christian era has yet been found out in any of these Dravidian tongues. The earliest form of the Kanarese script appears in an inscription found at Halmidi, which probably belongs to the middle of the 5th century A.D.

Tamil character. Tamil is the oldest, richest and most highly organised of the Dravidian lanugages and is spoken by more than eighteen million people in Southern India and in Ceylon. As regards the origin of the Tamil script nothing definite can be said. Buhler is of opinion that it was evolved out of the Brahmi alphabet of the 4th or 5th century A.D., and was subsequently influenced by the Grantha, a script which was then used for writing Sanskrit. Burnell, however, holds a different opinion. Tamil character, according to him, originated "in a Brahmanical adaptation of the old Grantha letters corresponding to the so-called Vatteluttu", an alphabet once in vogue in the entire southern peninsula south of Tanjore and also in South Malabar and Coimbatore districts and in support of his contention he refers to the retention by Tamil of the last four signs from the Vatteluttu, the Grantha having no such equivalents. But whatever might be the source of its origin, it reached its full development by not earlier than the 15th century.

Tamil characters have not practically undergone any marked change since then and hence they now differ widely from all other South Indian alphabets not only in shape but also in phonetic value.

Tamil has borrowed from Hindusthani, Arabic and Persian quite a large number of Judicial and political terms though its loan from Sanskrit is very insignificant.

Malayalam character. As a language Malayalam is closely akin to Tamil and is spoken by the entire population inhabiting the region on the Western Ghats, from Mangalore to Trivandrum. Originally it was a dialect of Tamil and though it has retained the old Tamil forms obsolete in modern Tamil, it differs from it in certain respects, particularly in pronunciation and idiom. The modern Malayalam script seems to be a mixed one on which the influence of two characters—the Vatteluttu and the Tamil has been profound.

Ceylonese scripts. There are two principal language groups in Ceylon—the Sinhalese and the Ceylon Tamil of which the latter constitutes nearly one-third of the Ceylonese population. Even Sinhalese is no Dravidian language but is essentially an Indo-Aryan tongue which became subsequently influenced by Dravidian. Indeed the influence of the Indo-Aryan civilisation upon Ceylonese history and culture as also upon its language and script was paramount. The influence of Buddhism and of its sacred language, Pali which took place in the second half of the 3rd century B.C., upon the same was also no less significant. Indeed there had been going on an extension of the early Indian civilisation and of its style of writing since the 5th century B.C. when the Indo-Aryan immigrants probably made a political and cultural conquest of the island.

While the Tamil-speaking people of the island use the Tamil script, the other group employs the modern Sinhalese characters which have been derived from the Indian Grantha letters. The modern Sinhalese alphabet contains 54 letters of which eighteen are vowels and thirty-six consonants or 'dead letters'. There are now two forms of Sinhalese—the Elu or the pure one and the Sinhala or the mixed one, the former being employed for writing poetry and the latter for writing both Elu and foreign words assimilated to Sinhalese.

A careful analysis of the Dravidian languages thus reveals that even though they borrowed profusely from the Indo-Aryan tongues, they have not lost their linguistic individuality. Some suggest that a variety of the Dravidian languages had probably been once the language of the entire Indian sub-continent before the Aryan invasion and in support of their theory they refer to the presence of Brahui, a Dravidian language still spoken by the people at a certain place in Baluchistan which is, as it were, a linguistic island in Pakistan. This even leads them to imagine that probably the people of the pre-historic Indus Valley culture spoke in one of the Dravidian tongues, though there is no material at their disposal to substantiate this assumption.

Even though the Dravidian languages form an isolated group having no connection with any other family of languages, they are written in alphabets that have been derived from those used in Northern India, particularly Devanagari or its other varieties. But their derivation is so complete and perfect that they are not recognizable as such.

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THE STORY OF THE BLOCK-BOOKS AND THE INVENTION OF PRINTING

"Printing is called the Art of Arts,
And typos then are artists—right—
They are the nobler counterparts
Of those who work in Black and White".

—C. G. Leland

An early manuscript is a thing of beauty and hence it is a joy for ever to all, particularly to collectors and lovers of books. It is prized not so much for its rarity, nor always for its contents but probably for its superb penmanship and brilliant illumination. Though most of the ancient classical manuscripts, notably those of the Library at Alexandria, the Pythagorean schools in Italy and the heathen temples almost everywhere became from time to time targets of attack at the hands of the vandals and barbarians and faced almost complete destruction, the world has not still been swept clean of them all. The barbarity and ignorance in almost every age have thus undoubtedly done some incalculable harm to the world of knowledge by effacing a great majority of the most important manuscript documents of antiquity, but they could not annihilate them all. Those that have escaped ravage and destruction are now found in the great public institutions of the world. Though most of these surviving manuscripts are noted for their penmanship and illumination, the oldest ones are found to be the least decorated. Indeed as a matter of rule the earlier the writing the plainer and neater it was. Books began to be illuminated and embellished since the early years of the 5th century when Christianity held the whole of Europe under its sway. Lofty churches and impressive monasteries were erected on one hand and magnificent devotional books were written on the other as if to match the splendour of the former. The twin arts of writing and painting which thus characterized the period have, therefore, left their indelible impression on almost every work of the time. As the monasteries and religious houses were the centres of missionary activities as well as of prayer and study, they had to produce such

manuscripts for the benefit of every class of the people in society. Some of these manuscripts were valued most for their contents, but the majority of them were mere picture-books containing pictures of saints and Biblical events intended for laymen who being unable to read the text could, however, understand the subject-matter by seeing the pictures with which the books were adorned.

But though most of these monastic manuscripts were noted for their calligraphy and illumination, there were some, particularly text-books and public records in which the standard of workmanship was definitely inferior. Gradually when the monasteries became the centres of organized manuscript production, not only scribes but even laymen were appointed to bring out more manuscripts in order to cope with the increasing demand for the same. Hence while copying from the original work scribes often made mistakes and this led to variation between different manuscripts of the same work. Sometimes again, even if they could detect an error in the original they did not deviate from the text. Moreover, though the original manuscript might have been very beautiful, copies made from the same often lacked both beauty and charm of the original for a variety of reasons. For example, some scribes might have less skill or less interest in the work, some might have an indifferent hand and some might have been hasty. When the demand for manuscripts increased further, a method of dictation was adopted, a monk reading out the text and others hastily taking it down. All these led to lack of uniformity in the manuscripts. Lastly, as the scribes had to work at a still greater speed, they could not retain the original standard of writing but used to write in a cursive hand and introduce ligatures and abbreviations not only to save writing materials but also to economise time. As a result of all these the original alphabet of 26 letters became so swollen in course of time that over a hundred different characters of the same appeared and hence one who wanted to read the manuscripts had to learn them all.

All these disadvantages led to a much simpler method by which information and instruction could be more swiftly and accurately reproduced and made available to a wider circle of learners and the method is known as wood-block printing. In this method printing was done from a design cut in relief upon a block of wood. But wood-block printing was no European invention. It was known to both India and China at least four hundred years

before Europe knew anything about it. The block-printed book appeared in China in the 9th century and the first book to be so printed was *Diamond Sutra* dated 868 A.D. which was discovered by Sir Aurel Stein in Tun-huang in west China. This represents the oldest extant block book in China which is now housed in the British Museum. The printing of pictures from wooden blocks had also been in use in Japan from a very early time. The Indians originally printed fabrics by this method for centuries. Though there is no positive evidence, it seems likely that this method entered Europe through some overland trade routes which always existed in some form or other. The method of printing from wood-block on paper was introduced into Europe probably in the early part of the 15th century. Originally it was practised in Western Europe for playing cards, figures of saints and so on for nearly a century before the invention of typography.

The first prints from wood-block were religious pictures in outline produced in the monasteries which were used by the early preachers as illustration to their sermons. With the growth of their popularity the monks arranged for their increased production and sold them as souvenirs to the pilgrims visiting the shrines. The printing from wood-block was a simple process. At first the design was cut in relief upon a block of wood. Its surface was then dabbed with a thin, brown ink and the impression was transferred to a sheet of paper by laying it over the wood-block and then by putting pressure upon the back of the sheet. Though this method was rather crude, it ensured large production, secured uniformity and minimized the possibility of variation.

Then came the production of leaflets containing both pictures and words. The words were cut in the same process on wood-block as pictures. The art of cutting fixed letters on wood is known as xylography. At first single letters were cut, but as the wood-cutters became more expert, they began to cut sentence after sentence according to a definite lay-out. The parish priests and wandering monks used these leaflets in order to illustrate their sermons. Next came complete block-books. A block-book was originally a collection of such leaflets, bound in book form, describing or illustrating consecutive phases in a religious story. Block-books were in four forms :

(i) Manuscript books in which wood-cuts were merely pasted,

(ii) Manuscript books in which wood-cuts were directly stamped into spaces,

(iii) Books in which xylographic text and pictures were printed on only one side of the leaf,

(iv) Books in which both text and pictures were printed on both sides of the leaf.

So far as the third variety is concerned, they were not also printed in a press but by the same rubbing method. Each page of such a book was printed on one side only because if the other side was printed by rubbing the printed side, the printed side would be spoilt. The one-side printed sheets were then pasted back to back in pair so that when the book was opened, only the printed matter could be seen. Such was the characteristic of most of the early block-books. As the early printers did not know the proper method of registering the paper on the wood-block, they could not keep uniform margin in the pages.

The greatest advantage of the block-book was that a book of which unaltered editions were frequently demanded could be easily reproduced without resetting the type. The *Biblia Pauperum*, that is, the poorman's Bible, for example, in which scenes from Christ's life were freely illustrated was reproduced in this way to meet the popular demand for the same. Block-printing thus served the same purpose as the modern processes of stereotyping and electrotyping. The earliest block-books were probably produced in about 1450 in the Netherlands and in Germany and later on in France and Italy in the early sixteenth century. There were nearly ten editions of the *Biblia Pauperum*, some of which were in Latin and some in German. Its authorship is, however, unknown.

There were a few more well-known books of this category which contained wood-cuts with a little text printed on one side of the leaf or wood-cuts and their explanatory texts printed on pages facing each other. The *Historia Sancti Johannis Evangelistae Visiones Apocalypticae*, for example, which illustrated the apocalypse, i.e., revelation of St. John consisted of a number of wood-cuts with brief text, printed two to a page while the more famous *Ars Memorandi* which means 'How to remember the Evangelists' was so arranged that illustrations and their explanatory texts were printed on pages facing each other.

But though block-books were remarkable specially for illustration, there were some which were completely bereft of them all and

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contained only xylographic text. The best known example of this group was the *Donatus*, a fourth-century Latin grammar compiled by A. Donatus which, in its block-book version, was the most widely used text-book in the Middle Ages.

The need for movable type

But cutting letters in wood was a very difficult job. It required both skill and labour. Each letter had to be cut in reverse and the cutter had to be very careful and alert while cutting letters lest they would be ruined by accidental chipping of the wood. When he had to cut a few sentences, his work was simply stupendous and at the same time extremely time-consuming. That is why most of the block-books were found to contain a minimum of text. Moreover, if any error was detected in the text in the block, it could not be corrected except by preparing the block afresh which meant high cost and exacting labour. As the popularity of block-books increased, there grew a demand for books with more text. It was the difficulty in meeting such a huge demand that probably made the early printers devise movable types. It might be possible that as some printers noticed the solid text of a discarded book, they separated the individual letters and formed a new and composite block for the printing of a different work. The earliest movable types were, therefore, made of wood. But wood was not a satisfactory substance for this purpose because it had a tendency to chip and break and hence the need of a harder substance like metal was keenly felt.

Printing with movab e type

Some people suggest that the invention of printing with movable type was largely due to the inspiration of Renaissance in Italy. But this seems highly improbable in view of the fact that those who devised the use of movable types were not prophets but workmen who worked not under the influence of a romantic ideal or impulse but out of sheer practical necessity. They noticed the increasing demand for such books as the Bible, church service books, theological treatises etc. and hence they applied their mind to devise some method by which they could bring them out in quantities and at a considerably reduced price and the result of all these experiments was the invention of movable type. Its advantages were also numerous. In the first place it was at once easier and cheaper to cast types than to carve them out individually. Secondly, if any correction had to be made, it could be easily done by altering

the wrong type or types. Thirdly, the same type could be used repeatedly until it wore out.

No one can, however, say with certainty even now how printing in this process started. It is still shrouded in obscurity. The suggestion that typography sprang directly from xylography is not also tenable, because wood-workers and metal-workers formed two separate guilds in those days and had little communication between them. Metal casting by means of moulds was, however, nothing new, for coins had been produced in this process ever since the Roman era. Coin moulds were made of clay or fine sand mixed with some greasy substance to hold it together. Type-mould at the beginning was also similar to coin mould. Into a similar mould molten metal was then poured in order to produce the printing surface. This process was somewhat akin to stereotyping and was called 'Jet en moule' in the past. In modern times it is, however, known as metallography or cast-printing. It is quite likely that the early printers used this method for forming types. Gradually metal moulds of copper or lead came into use, though nothing definite about their exact form is known even now. It is further suggested that the first type letters were cast without shanks, i.e., without the body of the printer's type, then assembled in the required order upon wooden blocks by means of glue and then printed from and the suggestion is not altogether baseless. Indeed the present method of casting types with shanks of uniform height seems to have been adopted not very long ago and surely not from the period of the initiation of the art.

Printing—Its contribution to civilization

The contemporary reaction to the introduction of printing with movable type seems to have been popular gratitude. People were not immediately conscious of the profound changes that printing would bring about but they became fully conscious of the fact that if would multiply copies of a text, make them cheap and hence, accessible to all. Indeed the economics of quantity production of books was so great that most desirable books in those days began to come out at a price lower than that of even blank paper or unused parchment or vellum.

The invention of printing with movable type was a milestone in the history of human civilization for yet two other reasons : it not only preserved knowledge in time but also spread it in space. Indeed

once printing had been invented, it became easier for man to perpetuate knowledge on one hand and spread it all over the world on the other. For unless there was printing most of the beautiful ideas and thoughts that enriched civilization would have perhaps died out as soon as those who gave them to the world died or the manuscripts that contained them perished. But thanks to printing, those great thoughts and ideas could be made to last for just as long as men desired, so long as even one copy remained. Not only that, by making multiple copies they could also be brought to the notice of hundreds and thousands of people at the same time and spread all over the world. The art of printing thus transformed the world and revolutionized civilization. It made the written word available to men of all walks of life.

Another significant contribution of printing was that it gave rise to an intellectual community—a class of 'professional men of letters. Before the introduction of printing poets, dramatists and others who could not find any place in the courts as court poets had to rot and die in poverty. Thanks to printing, such men can make a living by writing books or writing for periodicals and newspapers. Thirdly, but for this, it would have neither been possible to make faithful reproduction of great works of literature, philosophy and science of the past nor hand them down safely to posterity and consequently this would have acted as a constraint on the dissemination of culture amongst the masses. The diffusion of knowledge was really a slow process before the invention of printing. Fourthly, as the cases of the destruction of parchments and scrolls by fire and moths were not infrequent a good deal of useful knowledge would have been lost to the world if printing was unknown. Fifthly, before the invention of printing valuable manuscripts containing thoughts of 'the mighty minds of old' were accessible only to the monks of the holy order who lived in monasteries as well as to the rich who alone could afford to buy highly expensive manuscripts or borrow them against suitable security. It was the advent of printing that made them available to one and all and made them available at cheaper rates. Indeed the rich heritage of the past was no longer the close preserve of a particular religious order or of the privileged classes ; it became the common heritage of the common man everywhere. Truly speaking, printing hastened the advent of democracy and heralded the dawn of the modern era. Another notable contribution of printing was that it provided the necessary stimulus to the production of

maps and atlases which in course of time led to startling discoveries and wonderful explorations. Printing also contributed no less to the development of the freedom of thought for the authors had no longer to depend on the favour of a few wealthy patrons but could appeal directly to the larger public and thus they could not only think themselves independently but also encourage freedom of thought in others. Indeed there were patrons in those days who instead of assisting or encouraging literary men whom they professed to patronize generally treated them with a careless and even contemptuous indifference. Lastly, printing has become an industry which provides employment to a large number of people in every country. Indeed quite a lot of people having different grades of education—the author, the compositor and the machineman, nay even those engaged in book trade and in newspapers depend for their livelihood directly or indirectly upon printing. Books, journals and periodicals are thus not only a store-house of wisdom and an effective means of learning for all, they also generate employment and help income earning. The two facets of printing are really two sides of the same coin.

But the greatest contribution of printing is that it has helped the spread of civilization in our times. The civilizations in the past, important as they were, have not lasted chiefly because they were confined to a very few people. The barbarians and savages who far outnumbered the civilized people used to come down upon them and burn, kill and destroy whatever they found in the plains and thus scatter the civilization to the winds. But thanks to printing, modern civilization is free from that danger. It is likely to last long because it is far less local and far more widespread. Science has invented a new machinery for the diffusion of knowldge and culture. Indeed as a result of the invention of printing what one people or even one man knows tends to spread throughout the world and become the common possession of all.

Type-metal

But the invention of printing, though a momentous invention, was no spontaneous product of any disinterested scholastic pursuit or inborn creative genius. It was essentially the invention of movable letter units which had behind it the impelling urge of necessity. Wood being most unsatisfactory for the manufacture of movable types the inventors had to find out suitable type-metal which should

be soft enough to be melted and yet hard enough to resist considerable pressure without breaking and accordingly an alloy of lead, tin and antimony was discovered, lead imparting softness and antimony the opposite quality, namely the necessary hardness. The function of tin, however, is to make the alloy capable of being beaten and rolled into a new shape. The proportions of the three metals— lead, antimony and tin are generally 62 p.c., 24 p.c. and 14 p.c. respectively. They, however, vary according to the size of type to be made. If small sized types are required, the percentages of tin and antimony are higher while for larger sizes of type the percentage of tin will be less than that of antimony. A small quantity of copper is sometimes added to the alloy to toughen and harden it. The mixture of tin, lead and antimony had an added advantage. It gives an alloy which flows freely at a low temperature, gives a crisp face to the type and neither shrinks nor expands as it comes from the mould.

Process of Book Production

"Ready writing which we call printing" as Carlyle has defined It, involves much process. A. W. Pollard has called the process of book production by the name of book-building. The bibliographers and students of Library science must have thorough knowledge of this process of book production or as we call it, the technique of book-building because without it they cannot solve certain problems which confront them while undertaking their primary business of examining books. Book-production in that sense is truly the bread-and-butter of librarianship. That is why R. B. Mckerrow has suggested that bibliographers and students of library science, as they handle a book, must see it "not only from the point of view of the reader interested in it as literature but also from the point of view of those who composed. corrected, printed, folded and bound it".[1] Of these processes composition, correction and printing go by the generic name of 'Printing'. Printing is a device for multiplying what is written by making copies of it and to make copies of what is written we are, therefore, to compose it first and then to correct it and lastly to print the same for both circulation and storage.

Typography

Printing, the art preservative of arts is now an all-comprehensive

[1] R. B. Mckerrow, *An Introduction to Bibliography for Literary Students*, p. 4.

term. At the beginning it covered only the ancient art of taking impressions from blocks of wood or metal on paper or textiles, but to-day it includes many other factors like typography, composition, imposition, printing and even illustration. To take impression from a block built of movable letter units or 'types' is called typography. This was probably invented by Gutenberg of the city of Mainz in Germany sometime between 1440 and 1450. Each of the letters like a, b, c, d, etc., is called a 'sort'. The complete assortment of 'sorts' of any design is called a 'fount' or 'font'. In early days the original design of the artist for each sort was transferred to a tool of hard metal, generally steel, which was called the punch. On the punch the 'sort' that is, the letter was cut in relief in reverse. Hence 'punch' was the character of the alphabet cut out in relief in reverse on hard metal in order that a matrix might be formed of it. The 'punch' was then stamped with force into a small piece of soft metal, frequently copper, which then became the matrix. The 'punch' was, therefore, the origin of the matrix out of which type was fashioned. The matrix was important because it was from the matrix that the type was cast and any quantity of the letter could be produced.

The matrix was then placed in a mould and the molten type metal i.e., an alloy of tin, lead and antimony was poured in. When this had set in properly, it was ejected and trimmed and the single type was obtained. A type is, therefore, nothing but a small, oblong slip of metal on one end of which a letter stands in relief. The type is, however, negative and consequently the print obtained from it is positive.

The punches are now cut in the same way on punch-cutting machines called Pantographs and they are stamped into matrices also by machinery.

Type is now cast in foundries which specialise in this work. But in the early days of printing every printer was his own type-founder and also his own type-cutter. Even to-day there are some Printing houses e.g. The Clarendon Press which maintain their own type foundries. Even some individuals had their respective foundries and presses. For example, the great poet, William Morris who was a rebel against orthodox writing used to cut his own punches. He had his own designs as also his own hand press popularly know as the Kelmscott Press. Morris's greatest achievement was his Kelmscott Press edition of the works of Geoffrey Chaucer—a monumental work

published in 1896. This was a folio edition almost every page of which bore one or more initial words or letters designed by Morris himself.

With the introduction of the Monotype Foundry-type is now less in use except for display work. Printers generally purchase type from the foundries by fount and weight. A pound of type normally contains letters of each sort in a certain standard proportion for any language.

Parts of a Type

A type has different parts which have been named after the corresponding parts of the human body. There are four main parts in it :

    (i)   The Face
    (ii) The Beard
    (iii) The Body
    (iv) The Feet

The 'face' of type is that part which demonstrates itself to the reader and it comprizes the entire printing surface. It stands up in relief and takes ink so that it can make a consistent impression on the paper. There is a depression between the raised parts of a type face. This depression is called 'counter'. The space from the bottom of the letter to the front of the body is the 'beard'. The 'beard' consists of two parts : the 'bevel' and the 'shoulder', the former covering the sloping portion between the surface and the edge of the body and the latter the flat portion just below the lower serifs. The 'shoulder' is generally occupied by the descending parts of such letters as g and y. The descending parts of some italic letters often extend beyond their own body and rest on the shoulders of the neighbouring letters. In italic founts of type this happens also in the case of such letters as V and W whose right arms project out of their body, Q whose tail rests on its left-hand neighbour and 'f' whose head and tail intrude upon the living space of both its neighbours. These projecting parts are called 'kerns'.

The entire portion of a type from its feet to the flat surface at the upper end is called its body. The body is sometimes called 'shank' and sometimes 'stem'. It is the foundation on which the moulded letter rests. As it is rectangular in section, a large number of types can be easily placed side by side and held rigidly in a

frame so that it can be transferred as one piece from one place to another.
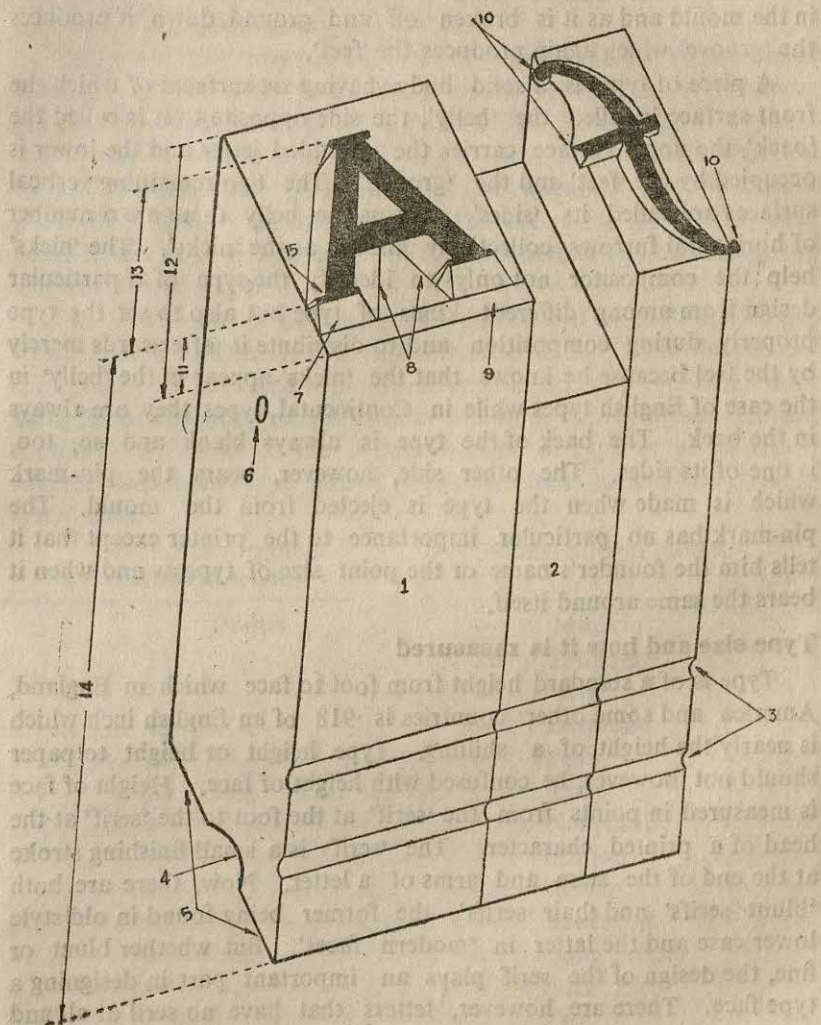
The parts of a type

(1) Front or belly (2) Space (3) Nicks (4) Groove (5) Feet
(6) Pin mark (7) Bevel (8) Counters (9) Shoulder (10) Kerns
(11) Beard (12) Body height (13) X-height (14) Height to
paper (·918 inch) (15) Serif.

The feet are the two projections at the base of the body and they are produced by the 'groove'. When a type is cast, a fragment of metal called 'jet' or 'tang' is found protruded from the orifice in the mould and as it is broken off and ground down, it produces the 'groove' which again produces the 'feet'.

A piece of type is a solid body having six surfaces of which the front surface is called the 'belly', the side opposite to it is called the 'back', the upper surface carries the moulded letter and the lower is occupied by the 'feet' and the 'groove'. The two remaining vertical surfaces are called its 'sides'. Across the belly there are a number of horizontal furrows collectively known as the 'nicks'. The 'nicks' help the compositor not only to identify the type of a particular design from among different kinds of type but also to set the type properly during composition and to distribute it afterwards merely by the feel because he knows that the 'nicks' appear in the 'belly' in the case of English types while in Continental types they are always in the back. The back of the type is always blank and so, too, is one of its sides. The other side, however, bears the pin-mark which is made when the type is ejected from the mould. The pin-mark has no particular importance to the printer except that it tells him the founder's name or the point size of type as and when it bears the same around itself.

Type size and how it is measured

Type is of a standard height from foot to face which in England, America and some other countries is ·918 of an English inch which is nearly the height of a shilling. Type height or height to paper should not, however, be confused with height of face. Height of face is measured in points from the 'serif' at the foot to the 'serif' at the head of a printed character. The 'serif' is a small finishing stroke at the end of the stem and arms of a letter. Now, there are both 'blunt serifs' and 'hair serifs', the former being found in old style lower case and the latter in 'modern faces'. But whether blunt or fine, the design of the serif plays an important part in designing a type face. There are, however, letters that have no serif at all and they are known as 'sans serif'.

There are three main classes of type-faces—Gothic, Roman and Italic of which the roman and the italic generally come to frequent use at the hands of the compositors.

In the past founts were made in a variety of sizes as a result of

which no two founts of the same body made by different founders could be used together. Hence the need of standardisation or rationalisation was keenly felt and the American point system was adopted to bring uniformity in type-sizes.

Types are known by the number of points and the measurement is taken from the 'belly' to the 'back' of the type. The measurement is called the 'body'. A point equals ·01383 inch which is approximately one seventy-second (1/72) of an inch. Type is measured not by its type-face, but by its body. The apparent size of type is generally judged by x-height which is the size of the letter x and such other letters as a, e, r, w etc., which have neither any ascending top nor any descending tail.

The American point system was introduced in 1870 and it was based upon a system devised by Francois Didot. But before the introduction of the American point system different type-sizes went by different charming names without of course conveying any relevant meaning. A table of the common sizes of type is given below together with their type size in points (modern names) and conventional names

Type size in points (Modern names)				Conventional names
3	Points	...	...	Minikin
3½	,,	...	...	Brilliant
4	,,	...	...	Gem
4½	,,	...	...	Diamond
5	,,	...	...	Pearl
5½	,,	...	...	Ruby
6	,,	...	...	Nonpareil
7	,,	...	...	Minion
8	,,	...	...	Brevier
9	,,	...	...	Bourgeois
10	,,	...	...	Long Primer
11	,,	...	...	Small Pica
12	,,	...	...	Pica
14	,,	...	...	English
16	,,	...	...	2-Line Brevier
18	,,	...	...	Great Primer
22	,,	...	...	Double Pica
24	,,	...	...	2-Line Pica

Of the these names only a few have survived notably Nonpareil and Pica which, when used even now by one printer, are easily understood by another as to which nearest points they refer to.

Type is measured in points not only from the belly to the back, but also from side to side. The measurement of type from side to side is called its 'set'. Certain founts are said to have a 'wide set' or a 'narrow set' which implies that the letters are inclined to be wide or narrow in relation to their size. The 'set' which is the width of the letter is the least in the letter 'I' and the maximum in 'M'. That is why the term 'em' indicates typographical unit of width used for measuring the length of a line of type. In modern printing terminology an 'em' is generally known as a 'pica' or 12 pt. 'em' which is approximately 1/6th of an inch. It is particularly necessary for computing matter and price in type composition. An 'en' is just half of an 'em' in size and as such, its measurement is one-twelfth of an inch. It is used to fill up room between 'em' quad and air space in a line. Sometimes 'en' is used in lieu of 'em' for measuring the length of a line of type. There is, however, a controversy as to whether 'em' has any relation with M and 'en' with N.

The width or 'set' of type, however, is of some importance to the printer because thereby he can estimate with some degree of accuracy the actual quantity of paper he will require for printing a certain number of copies in a particular type design.

Type faces

Gothic

There are three main classes of type-faces—Gothic, Roman and Italic of which the Roman and the Italic come to frequent use at the hands of the compositor even now. So far as the Gothic types are concerned they were no new invention of the early German printers but were merely copied by them from their formal national script which is still found in the German manuscripts of the period prior to the invention of printing. It was narrow, upright and sometimes closely compressed and as such, was hardly legible ; nevertheless it possessed tremendous decorative potentiality. The type resembling the Gothic was sometimes called 'Black Letter' which is used even now to indicate Old English Text or Church type.

Roman

The very nature of the Gothic type disqualified it to be adopted by the Renaissance scholars who were looking for a new model in the

classical past to express their new ideas and visions and consequently the roman letter which was believed to have been used in ancient Rome was adopted. The Roman letter was nothing but the Carolingian script which reached its development at the hands of the monks and scribes under the patronage and influence of Emperor Charlemagne. Scholars in search of a new model found it in the Carolingian manuscripts and readily adopted it for printing the old texts as well as the new. The greatest advantage of the roman type was that it was at once legible and clear, and as such, encouraged those who wanted to read, to read more. Gradually the roman type was adopted in all countries except in Germany where gothic type is still in use.

Venetian, Old Face and Modern Face

Roman types again may be grouped into three main classes : Venetian, Old Face and Modern Face of which the Venetian type appeared first. The Venetian type, as its name implies, was first used at Venice. It is characterised by small difference between thick and thin strokes, blunt serifs and perfect harmony and proportion between capitals and small letters. The 'Old face' which appeared still later is a fount of printer's type first cut in France in about 1535. It is characterised by oblique emphasis, lightness of colour, comparatively small difference between thick and thin strokes, and substantially bracketed serifs. The 'modern face' however, dates from 1702 and was standard throughout the 19th century. It is characterised by vertical emphasis and fine bracketed hair serifs.

Italic

It is a kind of sloping type without capitals which was introduced by the famous Italian printer Aldus Manutius in 1501. The suggestion that it was based on the handwriting of Petrach cannot, however, be substantiated. It was in fact based on the handwriting found in the manuscripts of the Papal Chancery. Some, however, suggest that this type was based upon the handwriting of Pomponio Leto, a leading scholar and the illustrious founder of the famous Roman Academy. Italics take up less room than roman letters and it was probably this fact that inspired Aldus to use it to bring out his small and compact editions of the classics in large numbers and at a comparatively low price. The first of these series was *Virgil* that appeared in 1501.

Originally Italics were used for the whole text of a book with of course roman capitals of a suitable size for such places where capitals were necessary. Gradually the sloping Italic capitals were also introduced by a new printer and were subsequently adopted by the Aldine House itself. Though Aldus's italic was good, it was surpassed both in grace and form by a new Italic type, altogether original, cut at Rome by Ludovichi Arrighi of Papal chancery in 1524. This naturally ousted the former in no time and seems to have been the progenitor of modern Italic type. Arrighi seems to have also introduced a new kind of ornamented italic capitals having a script-like or swash form and a certain amount of flourish e.g. A and *A*, B and *B*, C and *C*, J and *J*, V and *V* etc. These are known as *swash italic capitals.* But there was no complete alphabet of swash letters. For example, such letters as F, L, O, S, W, X had no swash forms.

Though Italy was the land of its origin, it soon spread away from Italy and reached countries as far as Poland and England. In England it was first used by courtiers and university professors who, impressed by this beautiful hand, had perhaps learnt it themselves during their visits to Italy and by 1502 when Henry VIII came to the throne it had already become the favourite style of writing in the royal court. Roger Ascham, the celebrated scholar and tutor to Queen Elizabeth taught his royal pupil also to write in this style. In deed italic was the most popular and the most elegant script in England throughout the sixteenth century.

Italics have now declined in favour and are now relegated to a considerably inconspicuous position. They are now used only for emphasis or other distinctive purposes, indicated in manuscript by single underlining.

Ligatures, Logotye and Punctuation marks

During the manuscript period the scribes used to join together two or more letters in order to economise space and time and the early printers simply followed this practice. Ligatures are therefore. nothing but two or more letters joined together—letters either of uniform design or differing in design from the separate letters, but always cast on one type-body, such as a and e joined as œ, f and i joined as fi. f, f, and i joined as ffi, f and f joined as ff, f, f and l joined as ffl and so on. .Caxton. the father of English printing profusely used ligatures by joining a and d, c and e, c and h, c and o,

i and l, p and a, r and o, t and e etc. by following the manuscript practice. Such customary ligatures were in fact a regular feature of printing throughout the sixteenth and the seventeenth century. But custom was not the only motive behind the introduction of ligatures ; it was rather convenience that encouraged and popularised its use. Ligatures were therefore, quite numerous in all founts— roman, italic and black letters up to the eighteenth century. In italic founts there were ligatures of *es, us, st* and in roman Et, oo and others of which the use of the ligature of Et has survived. Such ligatures as fi, ffi are quite common even now.

The reasons why ligatures were used or are being used are quite obvious. First, some of the early scribes who often did not dot the i found it easier to place it under the break of f to avoid an odd-looking gap and thus formed a single character e.g., fi. Another reason seems to be that during composition when the early printers found that the two neighbouring letters did not fit together properly because the break or curve of the first letter came in contact with the top of the upright second, they had naturally to use a ligature by joining the two letters as one character such as fi, ff, fl etc. This is why ligatures are used even to-day.

Logotype

When a short or often-used word or two or more letters are cast together on a single type body, it is known as logotype as for example, an, Mr, stop, qu : etc. Logotype is different from ligature in the sense that while connected letters form a *ligature*, any two or more letters in their regular form on one type body form a *logotype*. Logotypes are generally used for printing directories, time-tables and similar other things.

Punctuation Marks

The art of inserting points or 'stops' to aid the sense in writing and printing is very old. The punctuation marks include different signs indicative of pauses such as ,, ;, ?, :, ., ' ', " ", !, etc. Of these marks a sign like / indicative of comma or a short-pause in reading was used in early founts. The modern comma (,) first appeared in Venetian printing before 1500 but not earlier than 1521 in English printing. The query mark or the sign of interrogation (?) also came to be used by that time in England. The semicolon (;) came much later, perhaps towards the close of the 16th century. The full

stop was originally used after arabic numerals and both before and after roman figures such as 12. or .xii. The full stop was also used both before and after i, f and q such as .i.=id est, meaning 'that is', .f. =scilicet meaning 'namely' or 'that is to say' and .q. which meant 'cue'. Single inverted commas were used at the beginning of lines perhaps to indicate emphasis even during the early years of the nineteenth century, though their use as quotation marks first began in the 18th. The practice of using double inverted commas both at the beginning of a quotation and at its close seems to be comparatively modern. All these clearly indicate that regular punctuation marks as we find in modern writing and printing never characterised earlier writing and printing. They came to be used by successive stages and not all at once.

Composition by Hand

When a manuscript comes to hand for printing, the publisher and the printer at first settle the type or types to be used, the number of lines to a page, the length of the lines and so on. The lines should not be unusually long and the size of type should be such as it harmonises well with the page size. The compositor then stands before his 'case' with the manuscript in view. The 'case' measuring $32\frac{1}{2}'' \times 14\frac{1}{3}''$ is a large tray divided into numerous shallow boxes each of which contains a different letter in quantities. A pair of cases always go together, resting at an angle, one behind and above the other mounted on a frame. The 'upper case' contains capital letters, and figures of numbers and the 'lower case' contains small letters and 'spaces' and it is certainly for this that the small letter is sometimes called 'lower case'. The arrangement of capitals in the upper case is alphabetical, but the arrangement of small letters in the lower case is not so. It is more or less similar to that employed on the key board of a typewriter. That is to say, the types which are in frequent use are kept towards the centre where they are handiest for the compositor. The compositor then takes in his left hand a composing stick which is a small shallow tray which can be so adjusted with a screw that it will exactly hold lines of type of the required length. He then picks up from the case with his right hand, one by one, the types required to form the first word, inserts them in the stick beginning from the left side and holds them in place with his left

thumb. To pick up the right sorts he need not look at them for like a typist he has already acquired the art of doing so fast by long practice. The types are, however, put in the composing stick with their faces upside down so that when printed, the letters will be in their proper order.

Spaces and quads and the process of justification

After each word the compositor puts a 'space' which is merely a short type without any letter face on it. As the space between the words is kept blank, the 'space' used for doing so has less height than that of an ordinary type. Thus after composing word after word when he comes to the end of his first line, he is to see that he also comes to the end of a word. If so, he has nothing to bother but proceeds to compose the next line. If, however, he finds that there is no room in the same line in the stick for a complete word but there is room for the first syllable of the word with a hyphen, he should insert the same. If his line is a letter or two short, he must fill it up with spaces. But as all the lines of type should end evenly for the sake of beauty and uniformity, spaces cannot be added at the end of a line. So the additional space must be redistributed between the words in the line. This process is called 'Justification'. This is very important in printing because it is by this test that printing is judged to be good or bad.

Ends of paragraphs are filled up by long spaces called 'quads'. These in proof often appear to be solid black square. Quads are pieces of metal similar to spaces but much broader so that half a dozen of them may fill up an ordinary line. Even at the beginning of a paragraph a small quad, generally an 'em' quad is inserted to give the paragraph indention. An 'em' quad is a space which is as thick as the type size it belongs to is wide or thick. There are thus ten-point 'em's which mean ten points wide, twelve-point 'em's which mean twelve points wide and so on. An 'en' quad, as such, is half the thickness of a twelve-point 'em'. There are, however, spaces having different thickness such as *hair spaces, two-em quads, three-em quads* and so on of which hair spaces are used for filling up air space while the latter are used exclusively for filling up short lines at the ends of paragraphs. But when large areas of space require to be filled up, very large quads better known as *quotation*s are used. *Quotations* are generally cast hollow and can be made in a variety of sizes according to necessity.

C : BTP (III)—10

In the Elizabethan age the printers used an altogether different method of justifying the lines of type. They frequently did it by varying the spelling of words. If they found at the end of a line some more space to fill up, they used different spellings such as 'manie' in place of 'many', 'daunce' in place of 'dance', 'maneffe' in place of 'manes' and so on. If, on the other hand, they wished to save space, they used to contract the spelling of such words as 'The' and 'That' by 'Te' and 'Tt' respectively.

Leading

After getting one line of type in his stick the compositor then proceeds to set the second line by laying the types above those already in position. But in printing some space is left between the lines so that the printed text looks neat, distinct and handsome and is on that account, easily readable without causing any discomfort to the reader's eye. The blank space between the lines is kept by inserting a 'lead' which is a flat piece of lead alloy as long as the line of type is wide. As the 'lead' is not intended to touch the paper, it has body-height and no 'face'. The 'lead' is provided with a small projection at one end so that it can be lifted and inserted again for laying the next line of type upon it. In this way as each line of type is completed, the 'lead' is removed from below it and placed on its top for setting the next line on it. Leading is now a very common practice because it makes a book easily readable. If, however, the lines are not separated by 'leads', the matter is said to be set 'solid'. The effect of leading may be obtained even without the aid of 'leads', only by casting the types on a larger body. In Elizabethan England 'leading' was seldom employed in prose. It was used only for such purposes as division of stanzas in Poetry.

Leads are normally one to four points thick and made of metal. But when they are more than six points thick and made of wood, they change their names and become *reglets*. They, however, serve the same purpose as leads.

When the composing stick is full, the compositor reads it to see if there is any error and if he finds any, he corrects it at once by replacing the wrong letter by the correct one. Even though the types are all upside down and in reverse, the compositor feels no difficulty in reading them because he has already formed the habit of doing so through long experience. After making the necessary correction the compositor transfers the lines of type from the stick to a larger tray

called galley which has edges on three sides a little lower than the type-height. He then fills the stick again as before and shifts the contents to the galley and goes on doing so until he has sufficient standing type to form a page. The standing type arranged in the galley is often referred to as 'matter'. A modern printer generally uses larger gelleys which can accommodate three or more pages of type and does not as a rule divide the 'matter' that is, the standing type into pages until proofs are taken and first corrections made. This is done with a purpose because correction in the galley is at once easier and cheaper than in the chase in which type is subsequently made up into page form. It is easier because types can be easily lifted for correction and cheaper because if too many corrections, that is, if too many additions and alterations are made in the chase, it may be necessary to reset the whole matter and divide it afresh into pages which involves additional cost and labour. While lifting out the composed type from the stick to the galley the compositor is to be very cautious and alert lest the type falls and collapses into a disordered heap. This disordered heap of type is known as 'pi' which requires to be resorted and redistributed into the cases. The matter in the galley is then secured and tightened up by means of a piece of metal furniture against the last line and also by a long strip of wooden furniture against the whole length of the free edge with wedges. This 'matter' thus rendered secure in the galley is printed on to a long strip of paper in a handpress kept for this purpose. The galley proof is not normally sent to the author but is generally corrected by the proof reader. A second and cleaner proof goes to the author.

In the Elizabethan period the method of proofing in the galley was unknown. Work was rather done directly in page form in the 'chase' by adding 'signature' at the foot of the page, provided there was one and also by adding catchword at its head.

Imposition

As each page of type is completed it is tied round with a cord and kept aside for the time being until the rest of the pages required to form one gathering or section of the book is made ready. A gathering is the unit of such printing and it consists of a number of pages formed by a sheet of paper when the sheet is folded in a particular size. In a folio book twelve pages of type

are thus to be kept ready before the printer can actually proceed with his work. In the case of ordinary quarto and octavo books he is to prepare eight pages and sixteen pages of type respectively. In this way when the requisite number of pages are completed, the printer then 'imposes' them on a flat slab of stone or on a table in such a way that if a sheet of paper is now printed from them and then folded to form part of the book, the pages will be all in their proper sequence. To 'impose' ·means to put the matter in position and hence 'imposition' in printing implies arrangement of the pages of type in the chase. A chase is a rectangular frame in which composed matter is locked and rendered portable by means of wedges. The wedges are called side and foot sticks and 'quoins'. The spaces between the pages and the chase and between the pages themselves are, however, filled up with pieces of wood or metal called 'furniture' which is locked up with the type in the chase by means of 'quoins'. As the spaces are to remain blank in the printed sheet, the furniture has naturally a height lower than that of type. The levelling of composed type in the chase in done by placing a 'planer' on the type surface and tapping it mildly and carefully.

In modern chases intended for book work there are cross bars which are meant for arranging the pages as well as for the locking up of the type so that the whole may be safely lifted as one solid piece. The whole assembly of type locked up in the chase and made ready for the press is called a *forme*. The person who imposes the 'forme' on the table is still called the stone-man even though the imposing surface is no longer a slab of stone but a table with a top of smoothly planed steel.

It goes without saying that on correct imposition depends the right order of the pages. The pages are arranged into two separate groups, each containing four pages. The four pages thus arranged in the chase are known as 'forme'. The group known as 'outer forme' contains the pages which remain on the outside of the sheet when it is folded. That is to say, 1, 4, 5 and 8 are the pages of the 'outer forme'. The 'inner forme' naturally contains the pages which, when the sheet is folded, remain within the fold. That is to say, 2, 3, 6 and 7 are the pages forming the 'inner forme'.

Page and its necessary accessories

Pagination. After the arrangement of the pages for the required format is made each page is provided with the necessary accessories such as pagination, signature, heading etc. In early printed books pagination was very rare. In most of them a sort of leaf number (foliation) was often printed at the head of each recto page and hence, while counting by leaves the first page was called 1 recto or 1, the second was called 1 verso, the third 2 recto or 2, the 4th 2 verso and so on. Pagination as it is found in books to-day began not earlier than the middle of the 16th century. Even when paging was done the early printers did not bother much about their proper order and consequently gaps, repetitions and errors of all kinds occurred which caused much inconvenience to the readers but less to the printers.

In modern printed books there is no definite place for pagination. It occurs sometimes in the middle of the foot of each page, sometimes in the middle of the upper margin and sometimes at the right hand lower margin just below the last line on each recto and at the left-hand lower margin on each verso. Eccentricities of all kinds are found so far as pagination is concerned. One such eccentricity is found in giving the page number in words instead of in figures.

Signature. The most important thing from the binder's point of view is the signature or guide to the binder. It indicates to him how he should arrange the order of the sections or gatherings while binding the book. Generally it consists of a letter and a number placed at the foot of the first page of each section or gathering and sometimes also at the foot of each page in the gathering. But signature was no invention of the early printers. It was also found in medieval manuscripts. The scribes used to write the signature at the extreme edges of the leaves in order to give to the binder the indication as to how the gatherings were to be arranged. The signatures are, however, rarely found in the early manuscripts probably because the early binders used to trim them away as soon as the gatherings were arranged in their proper order, by forgetting altogether that a book once bound might need binding again.

The early printers also followed the scribes' method of supplying signature mark at the extreme foot of the first recto of a gathering,

but as it was troublesome for them to print a signature at a distance from the type-page, they sometimes added it by hand or by stamping. Gradually printing of the signature at the foot of the first page of each gathering became the rule which is followed till our own time. Johann Koelhoff of Cologne seems to have introduced signature in printed books in 1472.

Its importance. The importance of signature marks cannot be overestimated even now. They tell us whether a book is complete, whether any page or section is missing and whether the pages are in correct sequence. The presence or absence of signatures is also one of the aids to ascribing dates to undated books of the early age. Moreover, if two or more books uniform in style are being printed in the same press and bound in the same shop signatures help both the printers and the binders to distinguish between the different works. The importance of signatures was still greater in early times, particularly in the 16th and 17th centuries when pagination being rarely accurate in the printed books signature was far more reliable.

The form of signature might vary, but generally, as we have already said, it consisted of a letter followed by a numeral, either roman or arabic, at the foot of the first recto of a gathering, the same letter being followed by the next numeral in the second recto and so on till the middle of the section or the sewing was reached. That is to say, if the first recto was A 1, the second would be A 2, the 3rd would be A 3 and so on. The remaining leaves needed no signatures because they formed integral parts of the signed leaves and hence, presented no difficulty to the binders.

The modern printers, however, do not sign every recto ; they assign signature only to the first leaf of each gathering since this is a sufficient indication to the binders as to how they should fold the sheets and arrange them in order.

The Latin alphabet of 23 letters is generally adopted for signature and this includes either I or J and U or V but excludes W altogether because W does not occur in the Latin alphabet. When the first letter of the 'lower case' is exhausted, the printer may begin with the 'upper case' and vice versa or he may duplicate or triplicate the signature letters. As the preliminaries are printed last of all, they naturally form a separate gathering and are assigned arbitrary signature marks like asterisks, special symbols etc. for signature because the letter A has already been used for the commencement of

the text. The modern practice, however, is to use Arabic numerals only without any letter preceding them.

Catch words. At the foot of each page below the last line we generally find the first word of the following page. This is known as 'catch word'. Its purpose is probably to help the printer in imposing the pages correctly.

The scribes in medieval times used to add at the end of each section of the manuscript the first word of the next as a guide to the binder so that the latter could arrange the sections correctly. Such catch words served the same purpose as signatures in printed books.

There were no catchwords in early printed books. Gradually they became common and appeared at the foot of every page. But as they served no useful purpose particularly when they appeared along with signatures, they went out of use altogether by the end of the 18th century. Its use has, however, survived in modern type-writing in which it serves as an aid to reading.

Press Figures or Press Numbers. These should not be confused with signatures. The Press numbers were small figures usually printed at the foot of certain pages and are generally found in many eighteenth century books. Each pressman was generally allotted a number which he inserted to indicate wherefrom he took over work or wherein he stopped working. The press figure thus indicated the actual amount of work done by each printer so that he might be paid his due wages.

Headlines. The headline is an indispensable part of a page. Besides the decorative value it has also some practical use to the readers. As the headline is a shortened form of chapter or section heading that appears on the recto of each page, it helps the reader in finding out a section by turning over the leaves. Similarly as the shortened form of the book's title appears as the headline on the verso of each page it helps the reader to identify the work easily.

Headlines are thus of two kinds—Running headline or title head-line and Section headlines of which the former appears sometimes on both left and right-hand pages but normally at the top of left-hand pages only and the latter only on the right-hand pages. The headlinealso includes at the outer end the pagination which is meant for readers' convenience in reference. There is, however, no definite place for nor any fixed style of setting the headline. This in fact

varies from book to book. We may refer, for example, to one book namely 'Our Autumn Holiday on French Rivers' by James L. Molloy, in which the headline is found at the foot of the page while the pagination occupies the centre of the head.

Margins. In every printed sheet some space is left blank for trimming by the binder as also for providing room for the reader's thumb while he turns over the pages. To keep proportionate margins to the type-page is an important part of imposition. Margins are kept on the printed sheet by filling up the spaces between the pages as also between the chase and the pages by means of 'furniture', when the forme is locked up with 'quoins' in the chase. The white margins of a page are known by different names such as the head, tail, outer and inner margins. Of these the inner margin is the smallest, nearly half the width of the outer one and the tail-margin the largest. The tail-margin also needs to be larger than the head-margin, for otherwise the page would have looked as if it had slipped down. The inner margin is small because the unit of design is not the single page but a pair of pages facing each other and this we can see at any opening of a book. If the unit were a single page, equal margins could easily be kept on all sides, but that would not probably impart any good look to the printed pages. Since the unit of the design, however, is a pair of pages facing each other, the narrow inner margins of two pages, if considered together, do not appear to be so narrow.

Different authorities have, however, suggested various relative proportions for different margins of which the one held by A. W. Pollard seems easy to practise. 'The breadth of the paper and height of the type-page', according to him, 'should be identical'. At any rate good margins (proportionate margins) have great importance in the design of a book because they not only contribute to the comfort and pleasure of reading but also impart better look and dignity to the book. When a sheet is folded in octavo or smaller sizes, the folds at the outer-margin are called 'bolts'. The word is also used to refer to the folds at the top edge or at the foot. If the two leaves belong to each other, that is, if they are found to form a single piece of paper, they are said to be 'conjugate'.

Press work

The work of printing truly begins after the pages are correctly imposed and locked up in the two chases. The printer then lays the

chase containing the 'inner forme' on the bed of the press—a flat plate which is so constructed that it can be easily made to slide under the platen. The platen in the early press was a thick piece of wooden board but is an iron plate in the modern ones. Hinged to the bed of the press is an iron frame called the tympan which holds a vellum sheet on which the sheet of paper to be printed is laid. The 'forme' is then inked by means of ink-rollers, the ink being supplied from a supply tank in a regulated way. The ink-roller is made of a rubber-like composition which was introduced in 1810. But before the introduction of the ink-rollers the usual method of inking the type was to spread the ink on a stone from which it was taken up by the ink-balls for dabbing it on the type. The ink-balls were circular pads of cotton or hair covered with leather or some other suitable material and provided with handles. Two ink-balls were generally used—one in the right hand and the other in the left.

After the 'forme' is inked the tympan with the sheet of paper on it is folded down over it upon the bed which is then slid directly under the platen. The platen is then brought down upon the forme with considerable pressure by turning the lever so that it presses the paper on the type. As the paper has already received the impression, the lever is released, the platen raised and the bed withdrawn. The printed sheet is then removed by lifting the tympan and hung upon a string for the ink to dry.

But while inking the forme in the old method it sometimes so happened that a part of the furniture between the pages of type was also inked and as a result when the sheet of paper was lowered on the forme it spoilt the paper by transferring the ink to its margins. To prevent that possibility an attachment to the tympan called a 'frisket' came into use. The frisket is a light rectangular iron frame which is about the size of the tympan and attached to its free side with a hinge so that it can be folded down between the tympan and the forme. It is covered with a sheet of brown paper in which windows are cut out corresponding to the pages of type as set in the forme. This protects all parts of the paper except those on which impression is to fall. The frisket thus protects the margins from being smeared with ink.

Perfecting

If the printer at first takes the inner forme, he takes impression from it upon one side of the sheet bearing the pages of the inner

forme, i.e., pages 2, 3, 6 and 7.   To complete it he is to print from the outer forme upon the other side of the sheet bearing the pages of the outer forme i.e., pages 1, 4, 5 & 8.   This is called 'Perfecting'.   If the printer has two presses he can proceed with the work of printing both the sides of the sheet almost simultaneously leaving of course some margin of time between the two printings for the ink of the first printing to dry, otherwise the still wet ink of the first side may 'set off' on the tympan of the second press and may thus spoil the second sheet.   But generally a printer prints all the sheets on one side from the first forme and then piles them up for 'perfecting' them, that is, for completing them by printing on the other side from the second forme.   There are now many modern machines which can perform both the operations rapidly and at the same time.

Now-a-days when sheets of paper double or four times the normal size such as double crown (20″ × 30″), quad crown (30″ × 40) etc. are available and the press is also much larger the printer lays down the whole number of pages at one time and prints them on one side of the sheet.   If it is a double sheet, both the inner and the outer formes of a gathering are placed together on the press so that the printed sheet properly perfected will give two complete copies of the full gathering. If however, a quad sheet is used and 'the book' is in octavo, it will give 64 pages at one time, 32 being on each side and hence the printer is to place the outer and the inner formes of two consecutive sheets on the press together so that the printed sheet will give two copies of two full sheets.

Registering

Next comes the question of 'registering'.   To register means to arrange the pages on one side of the sheet in such a way that they exactly correspond in position with those on the other side of it.   If all the sheets of paper used be of the same sixe and have straight edges this can be easily done by marking the tympan sheet and then laying the sheet of paper to be printed to the marks. If, however, the paper varies in size, this is done in a different way.   Two pins are fixed to the tympan sheet and the sheet of paper to be printed is then placed on the tympan by giving it a crease across its longer side so that the two pins pierce holes at each end of the crease.   Then as the sheet comes to be perfected and the paper is laid on the tympan,

the printer is to see that the pins again pierce the holes already made while printing the first side. If he sees this he is satisfied because the registering in that case is perfect.

Distribution of the type

After the printing is over, the forme is washed down with 'lye', an alkaline solution to remove the ink from the type and again washed lightly with clean water. The chase and its furniture are then removed by loosening the wedges and the distribution of the types takes place. The compositor takes a few lines of type supported on a setting rule in the left hand and takes a word at a time with the fore finger and the thumb of his right hand, reads it and drops the type letter by letter into the appropriate boxes of the case from which they came.

Imposition in Folio, Octavo etc.

Imposition, as we have already seen, is nothing but the arrangement of type-pages in the chase necessary to produce a book. We have also seen how the imposition of a quarto book consisting of sheets printed with four pages of text on each side is done. But simpler than the imposition for quarto and in fact simplest of all forms of imposition is the imposition for broad-side or 1° in which a single page is printed on each side of sheet. As there is no fold in such sheets, they cannot be sewn through the fold and hence they are bound in book form either by stabbing or stapling the edge or by sewing a corner of them loosely with a string. The term 'broadside' or 'broadsheet' is however vague, for it may be a sheet printed on both sides or a sheet printed on one side only. The latter form of the 'broadside' was used in early times for proclamations and announcements which were naturally meant to be posted up.

Next to the imposition for 1° is the imposition in folio and this is the largest size ordinarily used in book-work. A folio book is made of sheets each of which is folded once and contains two pages printed on each side. If each sheet bearing two leaves is the unit of

a gathering and if each gathering is sewn separately, the imposition will be as follows :—
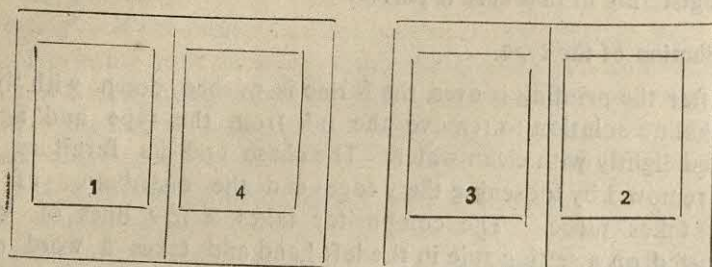
Imposition in folio

But as this kind of sewing will cause unusual thickening of the back of the book it is better to place three or four sheets together in one gathering and sew them all at a time. If a gathering be formed of three sheets having six leaves, it is called a folio in sixes. The next smaller size of book is the quarto (4° or 4to) the imposition of which we have already discussed.

The next size of book below the quarto is octavo in which eight pages are printed on each side of a sheet and the sheet is afterwards folded twice to make eight leaves. The imposition of a sheet in octavo will be as follows :—
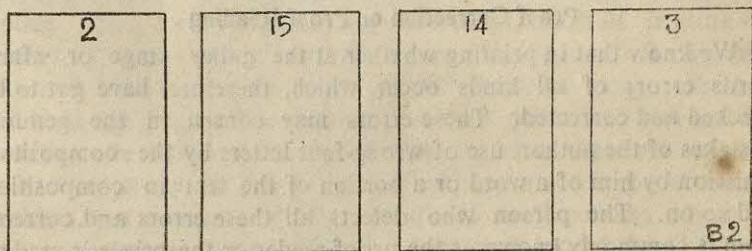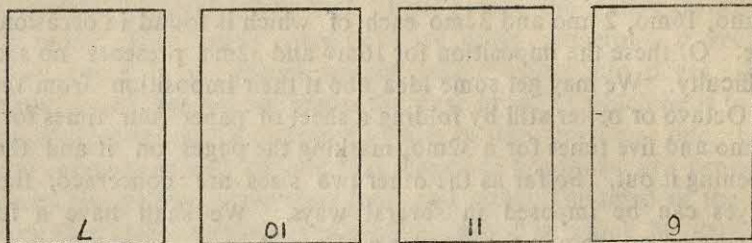
Imposition in Octavo Inner forme : Upwards.
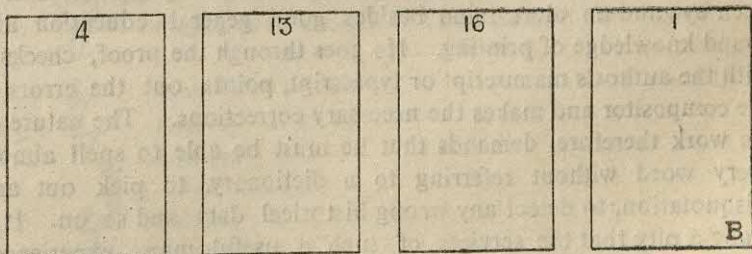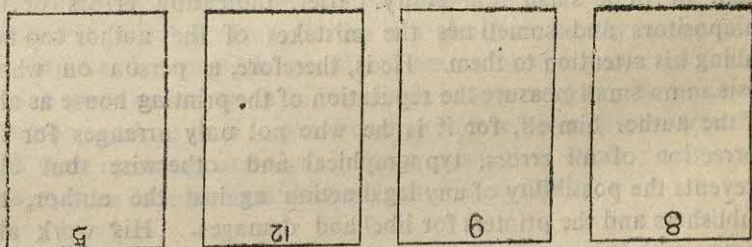
Imposition in Octavo outer forme : Downwards

Besides these, there are some other smaller sizes of books such as 12mo, 16mo, 24mo and 32mo each of which is found in occasional use. Of these the imposition for 16mo and 32mo presents no such difficulty. We may get some idea about their imposition from that of Octavo or better still by folding a sheet of paper four times for a 16mo and five times for a 32mo, marking the pages on it and then opening it out. So far as the other two sizes are concerned, their pages can be imposed in several ways. We shall have a full discussion on them in the chapter on Format.

Proof Correction or Proof Reading

We know that in printing whether at the galley stage or afterwards errors of all kinds occur which, therefore, have got to be checked and corrected. These errors may consist in the genuine mistakes of the author, use of wrong-font letters by the compositor, omission by him of a word or a portion of the text in composition and so on. The person who detects all these errors and corrects them is commonly known as the proof-reader or the printer's reader. A poor fellow pitied by his employers and envied by the compositors he is often found occupying an humble seat and pouring over long strips of printed sheets known as proofs in a corner of the composing room or in a small and stuffy closet, indicating errors of the compositors and sometimes the mistakes of the author too and calling his attention to them. He is, therefore, a person on whom rests in no small measure the reputation of the printing house as also of the author himself, for it is he who not only arranges for the correction of all errors, typographical and otherwise but also prevents the possibility of any legal action against the author, the publishers and the printers for libel and damages. His work also carries with it tremendous responsibility which requires of him a keen eye and an alert mind besides good general education and sound knowledge of printing. Ho goes through the proof, checks it with the author's manuscript or typescript, points out the errors of the compositor and makes the necessary corrections. The nature of his work therefore, demands that he must be able to spell almost every word without referring to a dictionary, to pick out any misquotation, to detect any wrong historical data and so on. It is really a pity that the services of such a useful man, experienced and educated, go so often unappreciated in most of the printing establishments and publishing houses.

Generally three sorts of proofs reach a printer's reader for the necessary correction by him. First comes the galley proof or slip proof. If of course corrections are quite numerous, a revised galley proof is sometimes sought before going into pages. The second proof that reaches him is the page proof in which he is to see that all corrections, as indicated by him in the previous one, have been properly carried out and that, page and headlines are properly spaced and printed in the right types and sizes. The third or the last proof that comes to him is the machine proof in which he gets the last opportunity for detecting the errors that have so far escaped his notice. Thus he is to remain ever alert at any stage of printing of a work so that no error of any kind takes place and if after so much care and hard work some errors are still found to occur in the printed book the finger of accusation is at once pointed to him as if he has been the villain of the whole piece and none has had any share in it. Conversely, if the printed work is found to be absolutely faultless, not even a word of praise, not to speak of any reward, is showered on him either. The poor man, he is indeed the Cinderella of printing.

The printer's reader indicates all errors in the proofs by means of some special marks or symbols which appear to be open sesame to a layman but to a printer they are self-explanatory. He gives these marks or symbols generally in the margin because the compositor does not read through the proof or even care to look to the middle of the text unless it is sign-posted in the margin. Some of the common symbols used in proof correction are given below together with their meanings and signs in the text so that some preliminary idea may be formed about how proofs are corrected.

Signs in the margin	Meaning	Signs in the text
,/	Comma to be inserted	Caret mark in the required position
;/	Semicolon to be inserted	" " "
-/	Hyphen " " "	" " "
?/	Interrogation " " "	" " "
⊙/	Full stop " " "	" " "
'/	Apostrophe " "	" " "
"/ "/	Quotation marks " " "	" " "

Signs in the margin	Meaning	Signs in the text
Ｃ/ ココ/	Square brackets to be inserted	Caret mark in the required position
#/	Space ,, ,, ,,	,, ,, ,,
eq #/	Equal space between words ,,	,, ,, ,,
less #/	Space to be reduced between words ,,	,, ,, ,,
Caps/	To be changed to capital letters	Three lines to be drawn under the letters to be altered
Sm caps/	,, ,, to small capitals	Two lines to be drawn under letters or words to be altered
l.c./	,, ,, to lower case	The letters to be changed to be encircled
itals/	,, ,, to italics	A line to be drawn under the words or the letters to be changed
Rom/	,, ,, to roman type	The letters or words to be changed to be encircled
w.f./	Wrong font letter to be replaced by letter of correct font	The letter to be changed to be circled
X/	Broken letter to be replaced by the unbroken letter	,, ,, ,, ,,
⊙	The letter to be inverted	The letter to be inverted to be encircled
trs/	The order of letters or words to be transposed	The letters or words to be transposed to be marked
⊂/	Close up	Two curves just below and above the two syllables of a word appearing at a distance from each other
⊋/	Delete and close up	A stroke and two curves above and below the letters or words to be taken out

Signs in the margin	Meaning	Signs in the text
=/	Lines to be straightened	Two lines to be drawn just below and above the lines to be straightened
⌒	A simplified d combined with a stroke following it signifies 'delete' or 'take out' the letter or word	A stroke through the letter or word to be taken out
Space out/	Space out	A sign to be inserted to indicate the portion to be filled up by spacing out
new par/	New paragraph	A sign to be posted indicating wherefrom a new paragraph is to be made
▭/	Indent one em	Space to be left blank by a sign at the beginning of a paragraph
stet/	The word or words crossed through by mistake to be retained	Dots under the word or words that are to be retained
↙	The letter or word missing to be inserted	A sign to be placed in the place wherefrom the letter or the word is missing
The correct letter /	This is a stroke to cross out a wrong letter	The same sign as is put in the margin to be used for crossing out a wrong letter
b.f./	To be changed to black face	Wavy line to be drawn under the letters or words to be changed
run on/	No space to be left at the end of a line but the next line should continue as usual right from there	This is indicated by a line connecting the previous line with the next.
‖/	Vertical alignment to be corrected	Same as marginal marks

Signs in the margin	Meaning	Signs in the text
lead /	Uniform space between one line and another to be kept by leading	A horizontal line to be drawn between the two lines if no uniform space has been kept between them

Specimen of Proof correction

It will perhaps be a truism to say that the creative roots of the Poet and the novelist are not inter — changeable. It is no wonder that seldom in World Literature has a novelist written Great Poeetry. and it is hard to conceive that any poet could ever create a War and Peace.

ISI Proof Correction Symbols

The Indian Standards Institution has, however, devised some new standard proof correction symbols in order to bring uniformity and coordination in reading and correcting proofs with regard to publications in English as well as in various Indian languages. Some of these symbols, it will be seen, differ from conventional signs, I have given in the foregoing pages. The symbols that differ are given below for the convenience of those who want to follow ISI proof correction symbols.

ISI PROOF CORRECTION SYMBOLS

Signs in the margin	Meaning	Signs in the text
⊙⟋	Colon to be inserted	Caret mark in the required position
⊙⟋	A 3-dot leader to be inserted	,, ,, ,,
/-⟋	Hyphen to be inserted	,, ,, ,,
½⟋	Half 'em' rule to be inserted	,, ,, ,,
1⟋	One 'em' ,, ,,	,, ,, ,,
○	Word or words to be under-lined	A line to be drawn under the word or words affected
○—	A line to be inserted	A line to be drawn where required
#=	Equal space to be kept	Place ⌊ between words
𝒮#	Delete and leave space	Caret mark in the required position
𝒮	Delete and close up	⟁ across letters to be taken out
#<	Space between words to be reduced	Place ⌊ between words
#>	Space between lines or paragraphs to be increased	A line to be drawn between the lines affected
⊥	Space to be pushed down	Space affected to be encircled
⅃⊐	The order of letters or words to be transposed	Place ⌐⌐ between letters or words
⟶	Figure or abbreviation to be spelt out in full	Words or figures to be spelt out should be encircled
⟨⟨	Omitted portion of copy should be inserted	Caret mark in the required position
⟩	Superior figure to be inserted	,, ,, ,,
⟨	Inferior figure to be inserted	,, ,, ,,
∼	,, ,, to be substituted	Letters or figures to be altered to be encircled
↑	Lines to be raised	Place ↑ over lines to be raised
↓	,, to be lowered	,, ↓ under lines to be lowered
\\/	To be placed in centre of lines	\\/ indicating position on both sides

Signs in the margin	Meaning	Signs in the text
	One 'em' to be indented	around matter to be indented
	Move lines to the right	Place the marginal sign at left-side of the words to be moved
	„ „ to the left	Place the marginal sign at right-side of the group of words to be moved
	Begin a new paragraph	Marginal sign before the first word of a new paragraph
	Combine the paragraphs	between the paragraphs
	To be changed to capitals	Three lines to be drawn under words or letters to be altered
	To be changed to small capitals	Two lines to be drawn under words or letters to be altered
	Use capital for initial letters and small capitals for the rest	Word or group of words to be altered should be encircled
	Letter or word from end of one line to be taken to the beginning of the next line	Place [in the reqd. position
	Letter or word from the beginning of a line to be taken to the end of the preceding line	Place] in the reqd. position
	To be changed to lower case	Letters to be changed to be encircled
	Change to bold face	Sign in the margin to be drawn under words to be changed
	To be changed to italics	A line to be drawn under words or letters to be altered
	To be changed to roman type	The letters or words to be altered to be encircled
	Replace wrong fount letter by letter of correct fount	The letter to be changed to be circled
	To be changed to smaller type	A vertical line to be drawn on the left along the text
	„ „ to bigger type	„ „ „
	Replace broken letter	The letter to be changed to be encircled

Mechanical Composition

To compose type by means of machines instead of by hand is technically known as mechanical composition. Though composition by hand was itself a great advancement over wood-block printing, it was by no means an end in itself. Difficulties and inconveniences had always been there such as delay in composition, high cost, drudgery of setting types, dull and exacting labour involved in distribution and so on. In order to minimise all these drawbacks of hand composition attempts had been made since the early part of the 19th century to devise such machines as would compose type more quickly and at cheaper cost, justify the lines and abolish the need of distribution altogether. The result of all these experiments was the invention of two main types of machines used for mechanical composition—Linotype and Monotype of which Linotype appeared a little earlier.

Advantages of Mechanical composition over hand-setting

As it is evident mechanical composition has some marked advantages over hand-setting. First, it eliminates the drudgery of hand composition and justification, saves the printer's time and thus enables him to accept more work. Secondly, it also eliminates the process of redistribution because when the type is broken up, it is simply thrown into the melting pot and cast afresh for the next job. Thirdly, as type is always cast afresh, there is neither any broken letter nor any foul case (wrong placing of letters after use in the holes belonging to other sorts). Fourthly, mechanical type-casting process saves space because type does not require to be stored at all. Fifthly, this method has ensured clean, fresh type for each job and thus it has improved the quality of printing considerably. Sixthly, this process also ensures economy of using metal because the same metal can be used over and over again for casting type whenever necessary and there is no need of keeping many fonts of type at hand. Lastly, this process provides a printer with a wide range of type faces which help him accept more work.

Linotype and its difference from Monotype

Though both Linotype and Monotype machines are used for mechanical composition, there is some difference between the two. As their very names suggest a linotype machine casts slugs i.e.,

whole lines of type in a solid state while a Monotype machine casts 'mono', that is, single letters whence the name of the process. A monotype machine casts letters separately and then arranges them in word and line order automatically while the Linotype machine composes one line at a time.

Of these two composing machines the Linotype was invented earlier, having been patented by Ottmar Mergenthaler in 1885. A modern Linotype does not differ much in principle from Mergenthaler's design. It is in fact an inproved version of the same having only greater flexibility and wider scope than the original.

Though it was used principally for printing book in the past, it is now scarcely used for book-work ; its importance now lies elsewhere—in the field of production of newspapers and periodicals where the work requires to be done so speedily and hence with so little care that nothing but linotype alone can cope with it. Moreover, as speed is the primary consideration in newspaper and periodical they can be handled with greater case and promptness than masses of separate types. The use of monotype, on the other hand, is now principally restricted to the production of printed books the nature of which demands that the printer must not normally make hurry but take time, patience and care to make the finished work as delightful and free from printing errors as possible. As the Monotype imparts clear and fresh look to the print and as it admits of free design of the letters it is undoubtedly the most suitable machine for the better classes of bookwork and hence preference is given to it for this purpose.

Linotype machine and its operation

The Linotype is a tall and somewhat large machine having a keyboard in front just below its middle part. The keyboard resembles that of a typewriter though the arrangement of the alphabet in the banks is different. Just above the keyboard there is a sloping matrix magazine—a chamber containing in its ninety channels the matrices which are nothing but the moulds for casting the face of types. Each matrix is in fact duplex since it contains two characters, roman and italic or roman and bold, punched in its side either of which may be used in casting. The magazine has, however, to be changed whenever a different type size or face is

required. As the operator sitting at the keyboard presses down the key for the required letter, the corresponding matrix is released from the magazine on to an endless belt which brings it to the assembly box which is a sort of composing stick of the machine. In this way matrix follows matrix in the correct order till a word is formed in the assembly box and just as a word is completed a space key is tapped in order to deliver into the box a space-band which is formed of two wedges, When sufficient matrices have thus been brought into the assembly box to fill up the line almost completely, the operator presses down a handle by the side of the keyboard to lift the line of matrices and space-bands to the casting part of the machine and as it is done, he commences setting the next line.

The line of matrices and space-bands is then justified by pushing up and expanding the double-wedged space-bands. The line of matrices and space-bands is afterwards brought in front of a mould wheel, a rectangular steel aperture designed to cast the body of the line. The matrices are clamped tightly against the opening in the mould wheel into which molten type-metal is pumped from the metal pot fixed to the left of the keyboard, thus forming the slug which bears the whole line of type characters in relief. The slug is then trimmed to the correct body-height and directly ejected on to a galley and the galley proof is taken. When the line is thus cast, the line of matrices is lifted by an elevator arm to a distribution bar along which matrices travel by means of their notched teeth at the upper end and fall through an opening into the magazine just below the bar, each matrix entering into its own channel or compartment, It should, however, be remembered that all the three kinds of work—assembling, casting and distribution are carried out almost simultaneously. It is also to. be noted in this connection that as slugs do not require to be preserved, they are thrown into the melting pot as soon as impression from them is taken thus causing a continuous circulation of metal.

Advantages

(i) Line composition is faster than hand composition. Indeed an operator of a Lino-type can compose as much in an hour as five or six compositors can do by working by hand at the case.

(ii) No type is jumbled as each line is cast in one slug.

(iii)   It is easier to handle a slug than to handle a line composed of several types.

(iv)   As matrices are assembled in full view of the operator, correction may easily be made by hand before casting.

(v)   As it is a single machine, only one operator is needed.

(vi)   Type-face is always fresh and new and there is neither any broken letter nor any foul case.

(vii)   Fewer matrices for each letter, not more than twenty for instance, are required in line composition.

Disadvantages

(i)   If an error occurs in a line after it is cast, the whole line requires to be reset and recast and if corrections are too many causing the shortening or lengthening of the line, even the neighbouring lines require to be reset and recast in order to secure justification.

(ii)   It has been seen from experience that quality impression cannot be obtained from a slug, i.e., from a solid line as it can be secured from a line of separate types.

(iii)   As slugs do not always cool evenly, lines are not always uniformly straight.

(iv)   Since slugs are cast from an alloy softer than that from which separate letters are cast they cannot withstand the pressure without losing some of their freshness.

(v)   No free design of the letters is possible in this process because letters forming a line are cast from assembled matrices in a slug.

The other machines of this category having more or less similar construction are the Intertype, the Ludlow and the Typograph which, however, are used for different kinds of special work.

The Monotype—its construction and operation

Even though the Linotype removed certain long-felt inconveniences of the printer, it could ensure neither the free design of the letters nor the freshness of type-faces nor any quality impression. Hence there was the need of a machine which would have all the advantages of movable types and yet would cast and set them at the

same time, letter by letter. The machine that satisfies this need is the Monotype which was invented by a young American named Tolbert Lanston, in 1887. Compared with the Linotype it is a more compact and comparatively small machine having a highly complex mechanism. It is, in fact, two separate machines one of which is a large keyboard and the other is a caster. The keyboard contains 306 keys of which thirty are justification keys arranged in its upper part in two rows, each row consisting of 15 red keys and the rest represent capitals and lower case of roman, italic and bold face together with small capitals, figures, punctuation marks, ligatures, such as fi, ffi, œ, etc. and spaces. Just at the top of the machine there is a coil of paper fed from a paper-tower. The casting unit consists of a cauldron or metal pot containing molten type-metal. Above it is fitted the mould which is a small square of steel. The matrix case containing brass matrices of all required sorts is inserted near the mould and this can be easily brought into position over the mould and tightened up with it by means of wedges. The matrix case is rectangular in size and contains matrices of all the characters represented on the keyboard. There are sixteen rows of matrices in it with seventeen letters in each, thus making a total of 272 characters. There is also a paper-tower on the caster just as there is one on the key-board but there are no punches here. There is also an air-pressure bar over which the coil of paper rolls itself. The air-pressure bar contains 31 holes each of which has a tube just below it.

As regards operation the operator sitting at the keyboard first punches the coil of paper by depressing the keys of the required letters, and then passes the finished coil on to the casting machine for setting and casting the types. As each key is tapped, it makes two perforations in the coil of paper for each letter, the coil moving on slightly and almost simultaneously. The perforations or holes on the coil represent the letters, punctuation marks, spaces etc. In this way when a line is nearly full, a bell rings which indicates that the is line to be justified by depressing the corresponding red justification keys in the upper part of the key-bank. When the coil of paper thus is finished, it is marked in pencil with the title of the book, the fount to be used etc. so that no confusion arises afterwards. The coil of paper is then taken to the caster and passed under the air-pressure

bar. As the coil moves on, each pair of perforated holes in it come just above the corresponding holes in the air-pressure bar, the compressed air from which passes through the holes punched in the coil, thus bringing the appropriate matrix into position over the mould. Molten type metal is then pumped into the mould and the single letter is cast. The letter is then trimmed, cooled and ejected and moved on to the galley in which it is arranged with other letters and spaces in the order. When a line is thus completed, it is moved up automatically for allowing the next line to be formed below it.

Advantages

Over and above almost all the advantages of the line composition this method has also a few additional advantages which are summed up below.

(1) It is easier to preserve for further editions and carry from one place to another a perforated coil of paper than a heavy stereo plate.

(2) Correction can be made by hand from monotype if it is not extensive.

(3) It is a vary swift process in as much as it can cast nearly 160 types per minute.

(4) Proof correction does not involve resetting of the whole lines.

(5) It ensures to some extent free design of type-faces and if necessary, makes even the use of kerns possible.

(6) It is capable of giving a great variety of type faces and virtually places no limitation on type design.

(7) As type is cast afresh for every job, the impression on every occasion is clear and bright.

(8) As monotypes are made of a harder alloy than solid lines of type, they can withstand several impressions without losing much of their freshness.

Disadvantages

(1) Two operators are necessary for the Monotype since there are two machines in it namely the keyboard and the caster.

(2) If an error occurs on the keyboard machine, no correction is possible on the coil of paper. But that matters little since it can be easily corrected in the proof without resetting the whole line as in Linotype. Moreover, the original corrected proof can be preserved and used for the correction of the text type.

(3) As the Monotype is a "mass of intricate mechanism" and has an elaborate apparatus, it is more costly than its 'large and untidy-looking' rival—the Linotype.

Computers and their use in Composition

Computers are now being used in certain advanced countries like the United States, Germany, England and Holland for the production of newspapers as well as for the reprinting of such materials as bibliographies, indexes, directories, timetables and the like which require rapid updating. Computers themselves do not however, compose type as yet ; they merely help printing by providing automatic line justification at a greater speed, a printout which may be used for proofreading, a magnetic tape containing the copy of a book or an article for future reprinting and so on. Computers are also used sometimes for costing and determining wages. But the installation of a computer in a printing establishment in an underdeveloped country merely for the sake of efficiency and speed will be an expensive luxury at the present moment.

Stereotyping and Electrotyping

Everybody knows that the first edition of a book is printed as a rule directly from the type forme. But for later impressions of the same it is neither convenient nor economical to reset the types and print from them again. To do away with the inconvenience of resetting the type and to reduce the cost of printing moulds are now made from the type forme as soon as the first impression is taken and the moulds are stored for casting metal plates bearing all the characters in relief from which subsequent impressions can be taken. The methods by which the forme of movable letters is converted into a solid block are technically known as Stereotyping and Electrotyping. These are merely duplicating processes by which later impressions in which no revision of the text is required can be printed without

resetting the type. These processes do not differ much in principle from Wood-blocks in which there was also no use of movable letter units. Of the two processes Stereotyping was invented earlier than Electrotyping. Its invention is generally attributed to William Ged, a goldsmith of Edinburgh who experimented for long with soldering the feet of separate pieces of type in a solid block and at last succeeded in or around 1725 in evolving a method not very much different from what is now called Stereotyping. But he met with serious opposition both from the printers and the typefounders who apprehended that it might throw them out of employment and hence he had to give it up. The modern method of taking a mould directly from the ordinary composed type was a subsequent invention having been made by a Glasgow printer named Alexander Tilloch in 1781. The method was later on perfected by two others, one being a London printer named Wilson and the other Charles, the 3rd Earl of Stanhope.

The method of making the stereoplate is as follows : After the forme of type is carefully brushed a kind of sperm oil (oil from the sperm-whale) is applied on it in order to release the mould easily. *Flong* or '*Papier mache*', wet or dry, the moulding material of stereotype is then laid on the type. The flong is made of alternate layers of tissue paper and blotting paper held together with a special kind of paste which makes the flong non-inflammable even at a high temperature. If the flong is wet it is mechanically pressed hard over the type so that the wet flong is dried. If the flong, however, be dry i.e., slightly damp, it is merely placed on the forme and passed through a hydraulic press. But whether the flong is wet or dry, the mould is made from it in this way. The mould is, however, very light but it is so lasting that it can be preserved for any length of time. The mould is afterwards placed in a casting box and stereometal is poured in. The flong mould, when cooled, is removed from the type-metal plate which has been cast from it and may be stored for further use. It is really surprising that even though the mould is made of mere paper, as many as six satisfactory plates can be obtained from the same mould. The back and edges of the type-metal plate are then levelled and mounted type-high on the bed of the press or bent round a cylinder of the rotary. Plaster of Paris is also used at times for making the mould for finer work.

When stereo is made in a cylinder forme it is known as rotary stereo-type which is largely used in newspaper work. It goes without saying that impression from rotary stereo-type is always taken in a high-speed rotary press.

Advantages

The greatest advantage of stereotyping is that it can not only perpetuate the face of the original type or block but can also multiply many copies. Indeed as the original type or block is used only for moulding the stereo and not for printing directly from it. there is no danger of its printing face being broken or damaged. Moreover, as too many stereo-plates of the same forme can be produced, they can be sent to different places for printing the same forme in different presses simultaneously. This is particularly useful for publicity and similar work when a single advertisement is to appear in different newspapers at the same time in different parts of the country and even abroad. If stereos are stored, 'repeat orders' can also be more easily and quickly executed without involving the cost of recomposition. Moreover, as it is the cheaper form of plate-making its use is rather extensive. Lastly, this method has kept many rare and useful books from going out of print.

Disanvantages

There are some disadvantages too and the chief among them is that it can only reprint such books in which texts do not require to be revised. Indeed once a mould is made, no correction is possible. The impression obtained from it is not also as clear as that obtained from the original type.

Electrotyping

The method of making metal plate of the original type forme by electrolysis is known as Electrotyping. Though a comparatively recent process, it is slower and more expensive than stereotyping and hence it is not used for newspaper work. The method of making electrotype is as follows :

At first molten bees-wax is poured into a flat moulding tray and when it sets properly but is still warm, the tray of wax is placed with its face downwards over the type forme already dusted with

its face downwards over the type forme already dusted with
graphite powder and both are put into a hydraulic press for exerting
pressure so that the letters of the type forme are forced into the wax
and thus form the mould. The wax mould is then separated from the
forme and black-leaded in an air-tight box in order to give it a meta-
llic face and increase its electrical conductivity.   The mould is after-
wards immersed in a solution of copper sulphate and is connected
with the negative terminal of a dynamo. The positive terminal of the
dynamo is also connected with some copper bars left in a similar
copper sulphate bath near the mould.   Electricity is then passed
through the bath and at once a thin layer of copper nearly 1/50th of
an inch thick is deposited upon the wax mould.   It is this thin
copper shell bearing a reproduction of the original forme on its face
that constitutes the printing surface of the finished electrotype.   The
copper shell is afterwards carefully separated from the wax, washed
clean with hot water and given the standard copper plate thickness
by filling its back with stereometal.   The back of the copper shell is
then levelled flat and mounted on a block to bring it to type height
or bent round the cylinder of a rotary.

Wax is scarcely used to-day for making the mould of an electro-
type, Its place has been occupied by soft lead which is a more
suitable material for making moulds, particularly for electrotyping
half-tone.

Advantages

The greatest advantage of electrotyping is that it gives a more
faithful plate than stereotyping. In the words of R. B. Mckerrow
it gives "a somewhat more perfect facsimile of the type than stereo-
typing, and the finest line-blocks can be produced at the same time
as the text of a book".[1]   Secondly, electrotype give a clearer
impression than stereotype.   Thirdly, since electrotype is made of
copper, it lasts longer than stereotype. made of type-metal.   But this
advantage of electrotype is shared even by stereotype when the latter
is faced with nickel which is even harder than copper.   Lastly,
electrotyping has helped considerably the reproduction and multi-
plication of a number of important books.

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[1] *An Introduction to Bibliography for Literary students*, p. 72.

Disadvantages

The main drawback of printing from this process is that once the mould is made correction becomes difficult. It is of course easy to cut and replace a set of words by another set of appropriate words occupying the same length of space, but that happens on rare occasions. It is generally found that correction is frequent and extensive necessitating fresh setting and complicated method of printing. Another disadvantage is that it can reprint only such books as require no revision of the text at all. Lastly this process is at once long r and more expensive.

Printing Presses

Hand-Press

The first hand-press was more or less an adaption of the earlier wine press or the linen press or the paper-maker's screw press. Gradually it was improved upon and by the middle of the 15th century a sort of standard hand-press was evolved which both in form and principle of construction did not differ much from a modern press. Originally it was made of wood and the wooden press continued to remain in use for more than three hundred years at the end of which it was superseeded by the iron-press. The first iron-press appeared in 1800, the form and the principle of construction remaining basically the same. It was a massive structure having two side-pieces known as *cheeks* which for the sake of rigidity extended from the floor to the ceiling. The cheeks again were connected at the top by a cross-bar called head *or cap* and at the bottom by another cross-bar called the *winter*. Behind this frame there were two *hind-posts* fitted into the feet of the cheeks by means of two other pieces of wood which formed the base of the hind-posts The hind-posts again were rigidly attached to the cheeks by two side-rails and were also tightly connected by two other rails—a tighter one at the top and a heavier one at the exact level of the winter. The spindle or screw of the press which was at a considerable height above the bed was connected to the top of the frame and housed in a wooden frame called the *hose* the purpose of which was to stabilise its vertical motion. The hose was surrounded by a band known as *garter* in order to fix the hose tightly round the spindle. There was an iron bar or lever inserted into the spindle and this was fitted

with a wooden handle for turning the spindle. The lower end of the spindle was securely fitte to the centre of the *platen*—a flat, heavy block of wood or metal the sides of which were also attached to the hose by clamps.   The surface of the *planten* had to be perfectly

Hand Press

levelled so that it would apply even pressure over the whole area of the type-forme to be printed from. The other part of the hand-press consists of the *carriage*, a horizontal frame at right angle to the

cheeks, the front end of which was supported by a *prop* or *fore-stay* resting on the ground.   The carriage bore on its upper surface iron rails along which the *plank* could travel both in and out between the cheeks.   The plank was fitted at its near end with another rectangular frame known as *coffin*, which contained a smooth stone of marble called the '*bed*' or '*press stone*' upon which the chase containing the type forme was laid.

Hinged to the outer edge of the coffin was a wooden frame called the *tympan*.   The tympan contained a sheet of vellum or parchment on which the sheet of paper to be printed could be placed.   Attached to the free end of the tympan was a light rectangular frame called the *frisket* which could be folded down between the tympan and the forme.   The frisket was covered with a sheet of stiff brown paper or parchment in which windows were cut out corresponding to the pages of type set up in the forme.   Its purpose was to protect the printing sheet from being smeared with ink from the furniture between the type pages.

Below the carriage carrying the iron rails was fixed a *windlass* or a wooden roller round which two leather straps or girts were wound in two opposite directions.   The two free ends of the straps were fastened to the two ends of the plank.   The windlass was also fitted with a small turning handle called the *rounce* the purpose of which was to wind or unwind the straps or girts so that the plank could be moved forward under the platen for taking the impression and backward again when the impression was taken.

The Platen Press

The hand-press had been quite adequate for nearly four hundred years, but with the spread of literacy and consequently with the increased demand for books the printer began to feel the need of such a press as would be able to print great quantities in reasonable time by means of steam power which was discovered just then. The first achievement in this regard was the Platen Press which used for all intents and purposes the same principle as the hand-press. In this new press the type bed was fixed in a vertical position and the forme of type was held vertically against it by clamps.   The paper to be printed was then placed in its feeding position by hand and held there by means of some steel grippers.   The platen was then swung in such a way as would exert pressure upon the type

forme on the bed. Inking was done automatically by ink-rollers which passed from the ink table which was just above the bed, over the forme each time an impression was taken. In a modern power-driven platen press all work including lifting and lowering of the platen, moving the bed into position and the feeding and removal of the sheet is done by machine automatically. The platen press is used to-day primarily for job printing such as hand bills, circulars etc.

The Cylinder Press

However perfect the Platen Press might have been it could not still overcome the low speed of printing which was a serious handi-cap to newspaper work. Hence there was the need of a press which would be able to print a large number of copies at a still greater speed without lifting and lowering its platen and this demand was soon met by a new kind of press called the Cylinder Press invented in London by an engineer named Friedrich Koenig in 1812.

In this new machine a cylinder took the place of the platen and as it rolled over the type forme laid upon the bed kept in horizontal position, the sheet of paper fed to the cylinder by means of grippers received the impression from the forme as a result of the pressure of the cylinder against it. It was capable of such a high speed that as many as two thousand impressions could be taken in an hour. Modern cylinder presses are of two kinds—Stop-cylinder presses and the two-revolution Presses of which the latter are later in date. The stop-cylinder Press better known as the Wharfedale has a single, large cylinder which revolves once over the type forme as the type bed moves forward thus printing the sheet and stops as soon as the bed comes back. The two-revolution Press on the other hand has a small cylinder which revolves once over the type-forme upon the bed, thus printing the sheet and then rises and revolves for the second time for allowing the type-bed move back-ward into position. As the cylinder does not stop, the two-revolution press is capable of greater speed than the stop-cylinder machine without however, impairing the quality of printing.

The Perfecting Press

But while the stop-cylinder and the two-revolution presses can print only one side of a sheet at a time, there are now presses

which can print both sides of a sheet in immediate succession. These presses are known as Perfecting presses because they print the backside of a sheet almost simultaneously as they print the front side, not of course in one operation, but during the single travel of the sheet through the machine.

The Rotary Press

There was still the need of greater speed for printing such things as cheaper books and magazines, particularly newspapers which could not be brought out as fast as it was considered necessary nor could they be brought out in quantities through the presses then in use to meet the growing demand and consequently a new kind of machine namely the Rotary press was invented, the plan of which was given by an Englishman named William Nicholson as far back as 1790. The presses found in most of the great newspaper offices to-day are based on his model. Instead of one cylinder a rotary press possesses two cylinders—the plate cylinder to which the curved type forme is fixed by clamps and the impression cylinder which revolves upon the forme thus making the impression on a continuous roll of paper known as 'web' passing between the two cylinders. A large rotary press is capable of very great speed and can print more than sixty thousand copies per hour. *The Sheet-fed letter press rotary*, a newcomer in the line is capable of producing nearly 6000 perfected sheets of 30" × 50" size an hour and is therefore an ideal medium of book production. Indeed in this age of speed when even the automatic stop cylinder flatbeds are unable to meet the growing demand of the publishers, ordinary flatbed cylinder letter press printing machines that can turn at best 1500 impressions per hour seem to be an anomaly. That is why *sheet-fed letter press rotaries* and *combined letter press and offset sheet-fed rotaries* are now being more and more used in the printing industry particularly for quality production of books and the like.

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PRINTING—ITS ORIGIN AND DEVELOPMENT IN MANY LANDS

"He who first shortened the labour of copyists by device of Movable types was disbanding hired Armies and cashiering most kings and senates, and creating a whole new Democratic world : he had invented the Art of printing."
—Carlyle

"Good printing cannot make a bad book good, nor bad printing ruin a good book, but good printing can create a valuable spiritual state in the reader." —Aldous Huxley

Printing in Ancient China

The story of printing which commonly implies the story of the invention and use of movable type has a romance of its own and for its beginnings as for the origin of most of the objects of antiquity we must look to the Orient, specially to China, the sacred birthplace and nursling of a rich and ancient culture. Just as China showed the way to the rest of the world as far back as the 9th century by printing from wood-blocks so also did she perform the most pioneering work by inventing the art of printing from movable type in less than two hundred years since her earlier invention. *The Diamond Sutra*, the oldest extant block book dates from 868, and between the eleventh and the fourteenth centuries all the major Chinese classics appeared in print. The father of this invention was one Pi-Sheng who, it is said, fashioned separate letters or types out of clay, baked them in an oven till they were hard and then set them in a frame for taking impression from them on paper sometime between the years 1041 and 1049 A.D. It was this rudimentary printing which through the evolution of centuries paved the way for the advent of what are now in common use—metal type and monotypes. However crude these clay types may appear to-day, there is no gainsaying the fact that they heralded a new age and constituted a great achievement in those days when the whole of Europe was still groping in the dark. It was nearly four hundred years later that Europe came to learn of it and began to practise it. Humanity, therefore, owes a debt of gratitude to China for her great

contribution to the cause of education and culture—their enrichment and diffusion thoughout the world. The earliest extant book printed from movable type seems to be the Korean *Souja Sail Kaju* dated 1409. We may get a scholarly survey of the subject made by T. F. Carter in his famous book *The Invention of Printing in China and its spread westward*.[1] But the development of the process by making each character separately offered no great advantage to the Chinese people because of the the huge vocabulary in their language. It was the small number of characters in Latin alphabet that gave a decisive advantage to the West in mechanizing the making of books a few hundred years after the Chinese invention.

The Place of the Actual Invention of Printing in Europe

As regards the invention of printing with movable type in Europe nothing certain can be ascertained even now. It is still a riddle to which no entirely satisfactory answer can yet be given. There are two serious claimants to this distinction one of them being Johann Gutenberg of the City of Mainz in Germany and the other Laurens J. Coster of the city of Haarlem in the Netherlands. There are, however, arguments both in favour and against the claim of each of the contenders and they are at times urged with so much vehemence and bitterness that the whole issue becomes clouded and as a result nothing conclusive can be derived from them. But whosoever might have been the inventor of printing it seems incredible that it was the invention of a single man or even a sudden illumination. It was rather the result of gradual development like any other arts and sciences. The impact of printing in China where it had been in use since a pretty long time might have been very great even upon European printing, for China was not altogether unknown to the West in the 15th century. From a dispassionate analysis of the circumstantial evidence as also of the claims of the rival claimants one thing that becomes apparent is that it was Gutenberg who invented type mould and the device of making punches and matrices and hence his contribution to the art of printing cannot be altogether overlooked. Moreover, that Gutenberg lived at Mainz and practised the art of printing cannot be questioned while the existence of Coster as a printer is still questionable. There are, however, some people who think that the earliest attempt at printing with movable type

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[1] Carter, Thomas Francis. *The Invention of Printing in China and its spread Westward* revised by L. Carrington Goodrich, second edition, New York, 1955.

was made in Holland by Coster and in support of this contention they refer to some crudely printed leaves and fragments found in recent times in the bindings of some early manuscripts and printed books known as 'Costernian'. But even if Coster was the father of the invention of printing in Europe, his was a crude and primitive art compared with that of Gutenberg. It was in fact the Mainz printer Gutenberg who actually brought it to perfection and it was with him that printing as we understand it to-day really started.

Printing in Germany

Johann Gutenberg, even if he was not the father of the invention of printing in Europe was at least the first man to introduce it in Germany and was the most outstanding figure in the field throughout the continent. Indeed by putting such elements as the casting of type, the adaptation of the screw press to printing etc. he made the written word available to men of all walks of life. Born at Mainz of a patrician family in 1400 he took his mother's maiden name Elsen Gutenberg, or else this mother's line would have been extinct, she being the last of the descendants. On account of a hostile political climate in his native city he had to escape from there with other members of his family to Strassburg where he settled for the time being as a mirror-maker. He came back in or arround 1448 to Mainz, his native city where he set up a printing press with the help of Johann Fust, a rich goldsmith who lent him a large sum of money for that purpose against the security of his printing tools. It was from this printing press that some copies of *Papal Indulgence* were printed in 1454. In this Indulgence Pope Nicholas V appealed to all to aid the king of Cyprus in his struggle against the Turks. These copies are really remarkable for the neatness and clarity of type. But the most remarkable of all the products of this time was the great *Vulgate Bible*, a Latin version made by Jerome in the 4th century. It was printed in 1456 which seems to be the first book printed from single type in Europe. It was called the *42-line Bible* simply because it contained 42 lines to a page. It was sometimes called the *Gutenberg Bible* because it was Gutenberg who originally planned for its printing. It was also known as the *Mazarine Bible* because it was found in the library of Cardinal Mazarine of Paris. A copy of this book is still found in the Louvre in Paris. Printed in *black letter*, it is one of the most magnificent books ever made. Fust who was an astute businessman had already grown impatient

of Gutenberg's procrastinating nature and had been fed up with his slow progress. He could not also remain satisfied with a couple of Indulgences. Hence he sued him in the court for the realisation of his dues and having won the case he obtained the control of Gutenberg's press and entered into partnership with Peter Schoeffer, one of Gutenberg's skilled employees who later on married Fust's daughter and together they brought out in 1456 the great Bible and thus enjoyed the fruit of Gutenberg's labour. Of the 47 extant copies of the Gutenberg Bible which are reputed to be the most expensive books in the world to-day some are owned by institutions and some by private individuals. In March, 1978 one of such copies was sold by a New York book dealer Hans P. Kraus for $ 1·8 million to the Gutenberg Museum in Mainz, West Germany. At present Paris has three Gutenberg Bibles in two libraries, London has three at two sources and the Vatican has two.

But though Gutenberg went for a while into obscurity, he did not retire from the field altogether for he seemed to have printed in
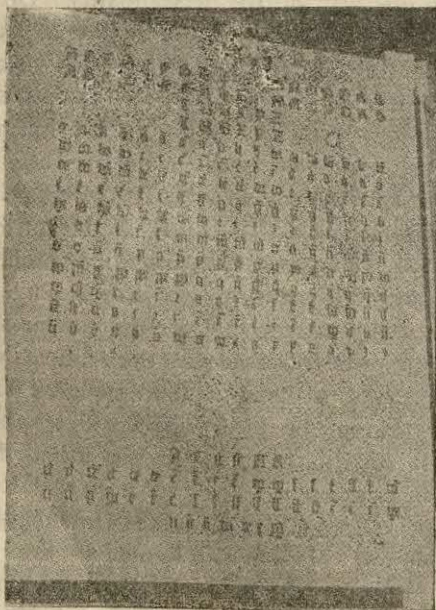
An exhibit showing the different letters and signs
Gutenberg made for printing the Bible.

1460 another book namely *Catholicon,* a Latin dictionary of the 13th century. He however, passed the rest of his life as a salaried courtier—a post offered by the Archbishop of Mainz in recognition of his meritorious services. He died in 1468.

Fust and Schoeffer, on the other hand, continued to thrive year after year thus bringing out a succession of very important works. In 1457 they brought out a lovely book—a copy of the *Psalter* (the Book of Psalms in the Bible), the first printed book bearing the printers' names and the date of printing. Other books that they issued included *Canon Missal,* a book containing complete services of the whole year published in 1458, the *Codex Constitutionum* of Pope Clement V in 1460 and so on. But the most ambitious work of Fust and Schoeffer was a magnificent *48-line Bible* printed in 1462 containing the printers' device—the twin shields of Fust and Schoeffer in the printed Bibles.

The art of printing gradually spread from Mainz throughout Germany and subsequently throughout Europe. But the most immediate cause which made printing spread in various German towns like Bomberg, Strassburg, Augsburg, Nuremberg, Cologne etc., was the sack of city of Mainz in October 1462 by Adolf of Nassau in his bid to capture the Archbishopric of the city as a result of which many skilled printers had to flee the city to seek their fortune elsewhere. Even Fust and Schoeffer had to leave Mainz on that account and go to Frankfurt where they remained for just a year. They soon came back to Mainz and built up in course of time a flourishing trade establishing branches even in France. They had to their credit nearly 116 publications probably the largest number that could be imagined from one press in those days. When Fust died, Schoeffer continued alone having brought out nearly 59 books in single venture. His death in 1502 closed more or less the glorious chapter of Mainz printing.

Printing in Italy

The next country in the continent to receive the art of printing was Italy. The innovators of the art even in Italy were no native Italians but two German printers—Conrad Sweynham and Arnold Pannartz who had to leave the city of Mainz after its sack. On their way to Rome they sought shelter in the monastery at Subiaco, a small village. Here they set up a press in 1465 and worked for nearly two years bringing out a number of books the most important of which

were a *Donatus,* an undated edition of *Cicero de Oratore,* an edition
of *Lactantises* and so on.   In 1467 they moved to Rome where they
printed the classics apparently at a loss to themselves.

Once printing had reached Italy it did not take long to reach
Venice, the greatest Centre of culture and manuscript trade in those
days.   But here too it was initiated not by any native of the soil but
by a German named John of Speyer who introduced the art in 1469.
But the most celebrated of the Venetian printers were Nicholas
Jenson, a Frenchman and Aldo Manuzio, and Italian better known as
Aldus.   Jenson learnt the art of printing at Mainz but instead of
going back to his home country he settled down at Venice because
Venice offered a better field for his work.   He was also an expert
type-designer and a type-cutter whose Roman, Greek and Gothic
types became models to others in later times. [Aldus was, however,
still more remarkable. He started his career as a publisher since
1494 printing at first a number of Greek and Latin books including a
magnificent five-volume Aristotle which led to his immense popu-
larity.   Soon he turned to a new variety of publication namely
Pocket classics which made him one of the front-rank publishers of
his time.   The first book of this series was an edition of Virgil
printed in 1501. His device – a dolphin and an anchor was first
introduced in his edition of Dante's *Terze Rime* in 1502. His
contribution to printing and scholarship was really very great because
it was he who for the first time issued accurate text and introduced
at the sametime much technical development. The beautiful roman
type now known as Old Face was also his creation.] It was also he
who for the first time developed a system of punctuation marks.
After 25 years of activity when he died in 1515 he could, however,
leave behind him no fortune because most of his editions were
openly pirated by his rivals even during his own life time thus
severely affecting his financial prospects.

Printing then spread to various Italian cities including Florence.
The Florentine presses were particularly remarkable because they
brought out a large number of very charming books, generally small
quartoes all amply illustrated with woodcuts. The popularity of
printing in Italy finally led to the overcrowding of the printers and
hard competition between them in almost every centre of printing in
Italy resulting in a gradual, sharp decline in the standard of book
production throughout the country.

Printing in France

The third country in Europe to receive the new art was France. There is, however, a story that some sort of printing from movable type had been in practice at Avignon long before its actual invention in Germany. Though there is no positive evidence there are some vague hints and suggestions in some records in the archives of Avignon which seem to confirm the story. The records, however, do not indicate whether what were printed were books or loose fragments. If it ever comes to light, it may change our knowledge about the origin of European printing and the credit of its invention may even pass from Germany to France.

So far as positive evidence is concerned Printing reached France in 1470. Before this an attempt was, however, made in 1458 when emperor Charles VII sent Nicholas Jenson, the Master of Royal Mint to Mainz to learn the secret of printing so that he might set up a press in Paris on his return. When Jenson returned, he found his royal patron dead. Moreover, he also observed growing opposition to printing from the guilds of professional scribes as well as from the wealthy patrons of learning. Hence he left the country and found a new haven in Italy. Long after this a press was set up in 1470 within the walls of the University of Sorbonne mainly due to the personal initiative and influence of two famous professors of this university—Heynlyn and Fichet who invited three German printers —Gering, Crantz and Friburger for this purpose. The two professors took so much interest in the work of this press that they not only edited some of the classics brought out by this press for the university students but also acted as proof readers. The first book of this press was a quarto edition of the *Letters of Gasparino* printed in 1470. The first book printed in the French language was an edition of *Les Grandes Chroniques de France* published in three folio volumes in 1477 by Bonhomme, the book-seller to the University. The printing of vernacular books soon spread to Paris where Antoine Verard, the most prolific printer of the time produced some noteworthy illustrated books, mainly romances. His first book was an edition of the *Decameron* in French published in 1485. He was also the first publisher to issue the printed edition of the *Livre D' Heures* i.e., *the Book of Hours*, a devotional book which was in great demand. He is also said to have printed nearly 286 books between 1485 and 1514. A brilliant printer he was, however,

without scruples in as much as he did not hesitate even to pirate successful works of other publishers.

Another important figure in French printing was Geoffrey Tory, a renowned scholar and reputed professor who finally resigned the University Chair in order to devote more time to designing letters, borders and devices. He was also responsible for the introduction of accent, apostrophe and cedilla (a mark placed under C to indicate an S-sound) in the French language. Though he was not a printer but a designer, he was handsomely rewarded for his merit by Francois I who appointed him Royal printer in 1530.

Other notable figures in French printing in the 16th century were Henri Estienne and his son Robert Estienne and his foreman Simon de Colines. Both Henri and his son Robert cared much for accuracy in the text of their works which were mainly Greek and Latin classics and the standard of their work was also very high. Simon de Colines, on the other hand, was a great technician who, like Aldus in Italy, also introduced for the first time 16mo editions in France. He was also a prolific printer whose total output exceeded five hundred editions. Various technical improvements were also introduced at this time such as catch-words, signature, page numbers, title page with details of imprint and so on.

Of the 18th century French printers the most outstanding was Francois Didot who founded a family bearing his name. His eldest son F. A. Didot who not only designed several Roman and Italic types having modern face but also introduced the modern method of measuring type by points. He also introduced a handpress and a special kind of hot pressed paper. His brother P. F. Didot was the founder of a paper mill at Essonnes in France where the first paper-making machine named Fourdrinier was invented.

Though printing spread throughout the continent with astonishing rapidity since its invention in Germany, the Low countries seemed to have been very slow in taking it up. The first known dated book in the Netherlands was printed at Alost in 1473. Gradually printing spread to other places like Louvain, Utrecht, Bruges, Brussels and Antwerp.

It is equally difficult to say when printing first started in Spain. Most probably it began at Valentia in 1473. But here too as in other European countries it was introduced by no native Spaniard but by the German emigrants who carried the knowledge of their craft

with them as and when they left their country. The output of the Spanish press throughout the 19th century was, however, very insignificant.

We need not bother much about the process of its further expansion except that it reached Belgium in 1473, Denmark in 1482, Sweden in 1483 ann Portugal in 1489.

Printing in England

Truly speaking the story of the introduction of printing in England is the story of the life of William Caxton. He was not only the first of English printers, but was also the most outstanding figure in the art throughout the continent because he was not merely a printer but a great scholar, a translator and a Public man. Born of a Kentish family in about 1420 or 1421 he was apprenticed to a London mercer or dealer in woollen goods when he was barely 15 years old and when his master died in 1440, he was compelled to find a new master and accordingly left for Bruges, an important centre of trade and commerce in the low countries to seek his fortune there. Here his success was almost immediate, for very soon he established himself here as a well-to-do merchant making trade visits to various countries like Holland, Flanders, Brabant and so on, finally becoming the Governor of the English merchant adventurers at Bruges and elsewhere in the Netherlands. By 1470 he entered the service of Margaret, Duchess of Burgundy, sister of Edward IV and this event ultimately determined his career. Caxton was essentially a scholar and a man of letters. The new assignment gave him both time and encouragement to pursue his own literary inclination. Here he devoted his leisure time to literary work including his translation into English from French of the most popular book of the time— *Le Recueil des Histories de Troye*. As the book was on popular demand and as sufficient manuscript copies could not be provided, he decided to print the book to bring it within the reach of all. Accordingly he went to Cologne in 1471 to learn the art of printing and remained there for neerly 18 months. Later, from 1475 to 1476 he worked with one Colard Mansion, a gifted printer at Bruges where he printed his own translation of the Recueil under the English title of The Recuyell of the Hystoryes of Troye, recuyell meaning 'gathering together'. Just as the '*Le Recueil des Histories de Troye*' was the first book printed in the French language, so also,

was its translation by Caxton the first book printed in the English tongue. In 1476 due to political changes his patroness Margaret fell from grace as a result of which he could count no more on her help and hence he left Bruges and returned to his native country and set up his press at Westminster. It was here that he produced his first substantial book *The Dictes and Sayings of the Philosophers* in 1477. It was also a translation from French but not by himself. This is commonly supposed to be the first book printed in England, though, as we have already seen, it is not the first in the English language. Since then until he died in 1491 he produced at his press as many as 96 books many of which were his own translations. Most of these works were, of course, romances and devotional books because they were sure to find a good market. His most ambitious work was *The Golden Legend* or *Lives of the Saints* printed in 1483. As he was an admirer of Chaucer, he also brought out an edition of Chaucer's *Canterbury Tales*, a folio of 372 leaves in 1478. He also brought out another edition of the same work from a different manuscript in 1483. He did not also overlook such romances as *Morte d' Arthur* which, he knew, exercised a tremendous influence on the imaginative mind of the English people nnd hence he brought out Malory's *Morte d' Arthur* in 1485. Other works printed by him included the issue of the *Polychronicon*, a book of history by Ralph Higden (1482), *Reynard the Fox* (1481), the poems of John Lydgate, *Aesop's Fables* (1484), Gower's *Confessio Amantis* (1483) etc. He might have printed even a few more books of which no copy has come down. As his works were very popular and hence frequently handled, a very high proportion of his works have survived in single copies or fragments. Moreover, very few of his works are dated and almost none is graced with a title-page.

As he was a man of literary taste, he was concerned more with the texts than with the technique of printing and probably he would have never cared for technical improvement unless he was forced by competitive circumstances. Originally his work was typographically crude, but with the emergence of a rival printer, John Lettou in 1480 he had to introduce newer and neater types and such other improvements as signatures and woodcuts to compete with his rival.

Caxton was not merely a craftsman but also a scholar, a linguist and a translator whose reading was deep and wide. He was not also merely a compositor and a printer of other people's work. Gifted

with rare talent he had the joy of creation of a pioneer which gave him no repose or idle moments even when old age was creeping on. His contribution to English literature was also very great in as much as he preserved for his countrymen the verses and romances of his time. He will be remembered not only as the father of English printing but also as an editor, a translator and a critic of out-standing merit.

Wynkyn de Worde

After Caxton's death in 1491 his press passed to Wynkyn de Worde, his foreman who was trained by Caxton himself. He was no learned printer like his master though he was a hard-working competent workman who kept a steady flow of books until his death in 1534. At the beginning he used the types left by Caxton, but soon he made his own type-faces. During 40 years of his independent activity he produced as many as 800 pieces which set a record for the 16th century as the highest number to have come out from the press of a single printer. Some of his works specially *The Golden Legend* (Lives of saints) and *Vitas Patrum* (Lives of the Fathers of the Early Church) were translations by Caxton. He also printed several scholastic works and a series of four romances which were so popular that no complete copies had survived. But most of his works were mere pamphlets and stock Latin grammars of the day. Moreover, a large number of his works were undated and those that were dated were mainly reprints of works issued by Caxton. By 1500 he moved to Fleet Street which had by that time become the centre of book trade. He adopted some technical improvement such as woodcuts, separate title page etc. He was a popular printer whose motive was chiefly commercial. Caxton, on the other hand, was primarily a scholar and secondarily a printer and hence his motive was chiefly intellectual rather than commercial.

John Lettou and William Machlinia

The first London printer was John Lettou who had been for some time Caxton's chief rival. He had begun to print there at least as early as 1480. In 1482 he was joined by William Machlinia, a Belgian who had been one of Caxton's assistants and together they brought out a few law books mostly undated. But this partnership was soon dissolved and hence Machlinia continued alone until his death in 1490. He produced as many as 22 books all undated.

At St. Albans the unknown 'Schoolmaster' established a press in 1479 and a few years later printed the celebrated works *Bokys of Haukyng and Huntyng* and *Cootarmuris* by Dame Juliana Berners.

Richard Pynson

Richard Pynson, a foreigner from Normandy was a serious rival of Wynkyn de Worde. He took over Machlinia's press sometime in 1490 and leapt into fame almost simultaneously by issuing an edition of '*The Canterbury Tales*' illustrated with woodcuts in which he referred to Caxton as his 'worshipful master'. Soon after this he printed a Latin-English Dictionary supposed to have been compiled by a monk. But the most beautiful book that came from his press was a copy of *Sarum Missal* which was regarded as the finest book printed in England up to the year 1500.

He was at once a scholar and a prolific printer who produced nearly three hundred books before he died in 1530. He was not only more educated than his great London contemporary Wynkyn de Worde but was also more proficient and skilled as a craftsman than his great rival. The two lived and worked almost opposite to each other in Fleet Street. In 1509 he received the highest recognition of and reward for, his work when he was appointed the royal printer by Henry III.

Richard Grafton

He was responsible for the production of *Coverdale's Bible*. As this was dedicated by Thomas Matthew to Henry VIII, this was also known as the *Matthew's Bible*. In collaboration with another printer Whitchurch he also brought out service books, primers, Bibles, Acts and Statutes for which he obtained royal licence and subsequently was appointed the royal printer. The device he used as a printer was a tun with a grafted fruit-tree growing through it. It was a pun upon his name. But he was soon deprived of his office and was even thrown into prison by Queen Mary when she came to occupy the throne, for his indiscretion in assigning his name as printer to Lady Jane Grey when she temporarily came to the throne. He was, however, fortunate enough to escape with his life. After his release he did not regain his office and did practically no further printing. He died in 1572.

Thomas Berthlet

Among the early 16th century printers of England Thomas Berthlet, a Welshman was as remarkable as Richard Pynson. He was appointed royal printer soon after Pynson's death in 1530. He was an excellent printer who used illustrations and ornamental initials sparingly but effectively. As the royal printer the first book he printed was the *'Determination of the most famous universities'* which was nothing but a piece of propaganda in support of Henry VIII's divorce from Katherine and his marriage with Anne Boleyn. Another work by him was an *Institution of a Christian man*—a book for religious guidance compiled by the Bishops and printed with royal assent. He had, however, to lay down his office as royal printer soon after the death of Henry VIII, his royal patron. He however continued the practice of his art until he died in 1555.

John Day

The next important figure in English printing was John Day who resumed a vigorous and extensive printing soon after Queen
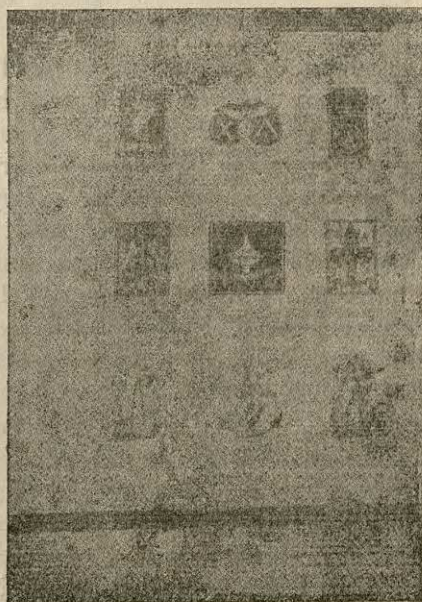
Printer's marks of the 15th and 16th centuries.

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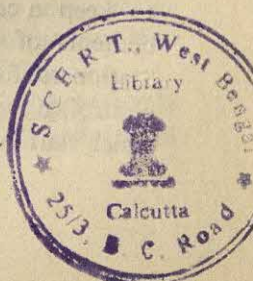
Elizabeth's accession to the throne in 1558. His first important publication was a folio edition of William Cunningham's '*Cosmographical glass*' issued in 1559. He also printed in 1570 the immortal work '*The Scholemaster*' by Roger Ascham, the celebrated classical scholar and tutor to Queen Elizabeth. During the years from 1546 to 1586 he issued from his press several hundred books, some of which were really famous. He printed, for example, the collected works of Francis Bacon in three volumes, the English edition of Fox's *Book of Martyrs* in 1559, Fox's *Acts and Monuments* in 1563, *Theatre for Worldlings* in 1569 which contained verses of Spenser written in his early youth. He also printed a large number of very decent editions of books of his time including those of Norton's *Tragedy of Gorboduc*, the first English tragedy (1570) and the finest English translation of *Euclid's Geometry* (1570). He was the most skilful printer of his time who also cut excellent founts of roman and italic type as also Anglo-Saxon fount. His device consisted of the figure of a person awakened from sleep and the motto "Arise, for it is Day". He became the Master of the Stationers' Company in 1580 and died in 1584.

Emergence of the Stationers' Company

Since the beginning of printing in England there had been practically no restriction either on the import of books from abroad or on the settlement of book-traders of foreign origin in England. Gradually since the beginning of the 16th century a class of people called stationers grew up whose business was to buy unbound books from abroad and then bind and sell them. Most of these stationers were of foreign birth. The import of books as also the trade of a stationer was, however, forbidden by Henry VIII when his dispute with the Pope reached its height and consequently printing became the monopoly of the English printers. The stationers, most of whom were also printers soon combined to form a company to safeguard their interests. In 1557 at the end of the reign of Philip and Mary the company of Stationers of London, a body which had already been there was granted the monopoly of printing evidently to keep a careful watch on all foreign books as also to scrutinise the contents of all English books before they were published. The Stationers' Company kept a register of copies and generally controlled the book trade. It was this register of the Stationers' Co. which thus laid the foundation of English National Bibliography. The

register of the Stationers' Co. is available in print since its inception to 1708, even now. As a documentary source of knowledge this is comparable only to the Records of the Guild of Parisian book-binders.

In spite of Milton's passionate plea for the freedom of the press in his Areopagitica the press was not free even in the Parliament Period under Cromwell. He therefore, disobeyed the law with a forceful plea when he said "He, who destroys a good book kills reason itself, kills the image of God, as it were, in the eye" and gained a victory for the time being. Thus we see that the service which the printing press rendered to England upto the middle of the 16th century was very great. It heralded the dawn of a new age and supplied its immediate needs. English which had been so long the language of the rustics had become the language of the literature of England even before the end of the 15th century. The vision of Piers Plowman described the peasant and his thoughts, the Canterbury Tales of Geoffrey Chaucer had given expression to joys and sorrows of the middle-class people and the romances of Morte d' Arthur delighted the English youths with stories of chivalry and honour. And the persons who made these things popular were the printers who included Caxton and his successors. Printing itself indicated a change—change in ideas and thoughts, in attitude to life and its problems. In fact the Middle Ages were yielding place to the modern age and the thing that rendered the most valuable help towards establishing this new age was printing. It encouraged the growth of literature and the diffusion of knowledge, broke the old traditions and furthered the production of foreign classics, popular literature in English and so on. In a word, printing was the sign of a new life, a new spirit and a new world.

Printing In India

The study of the history of Indian printing like the study of the history of India is a fascinating study to all lovers of antiquity. For it was in India nearly four hundred years before Europe knew anything about printing that printing from wood-blocks was not only known but was extensively practised. The early Indians printed their fabrics by this method for centuries. Though there is no conclusive evidence to prove, it seems likely that this method entered Europe through some overland trade routes then prevailing.

But the story of the introduction of printing with movable types in this country is of comparatively recent times. It dates from

the middle of the 16th century nearly a hundred years after it was invented in Europe. But the origin of printing in this country unlike that in Europe was initiated and inspired not by indigenous scholarship and zeal but by foreign efforts. For it was the European Roman catholic and Protestant missionaries, mostly of Portuguese, English and French origin who by following their traders and colonists established their centres generally on the coast line of the country and started preaching the gospel of Christ among the natives of the soil. That is why most of the early printing presses in India hugged the coastline of the country. Goa, Cohin, Pudikail, Vypicotta and Ambalakad along the west coast represent the sources of the Indian Incunabula and Tranquebar, Madras, Serampore and Fort William, Calcutta along the east coast represent the formative period of Indian printing. The contribution of Bombay to the growth of early Indian printing was no less significant. As these missionaries wanted to preach the gospel of Christianity among the natives of the soil, they had to learn the native tongue and even to bring out sermons and scriptures in them without which, they knew, they would not succeed in their venture. The Roman Catholic mission, the first of its kind to be set up on Indian soil, therefore, led the way even in this regard and the Protestants at Tranquebar and Serampore who appeared a little later in this field exploited the new art—the art of printing to their best advantage.

Printing at Goa

Though Goa is the sacred birth-place of Indian printing, there is not much of its product surviving till our own time. The first book which is supposed to have been printed here was the 'Conclusoes' of Antonio de Quadrus written in no Indian language but in Portuguese. It was printed in 1556. The theme of the book was "the thesis of philosophy used by students in Public debates". No copy of the book has, however, survived. The next book that was printed here was a "Catechism of the doctrine of Christianity" by St. Francis Xavier. It was also written in the Portuguese language and printed in 1557, just a year after the first book was brought out. The honour of being the fathers of Indian printing however, belongs to a galaxy of eminent men like Brother John of Bustamente, John Quinquencio, John of Emden, Joannes Gonsalves and a host of unknown Indians who were all trained in Portugal and helped

Brother John of Bustamente. One of the early books which was printed here and a copy of which is still found in the New York Library is the *Compendio de Vide Christao*. It was printed in 1561 by John Quinquencio and John of Emden. But the first book to be printed in an Indian language was a translation into Malabar-Tamil of Francis Xavier's *Doctrina Christao*, the only surviving copy of which is now in the Bibliotheque Nationale, Paris. It was probably printed in 1577. The copy at Paris is not an original one but a 1579 reprint of the volume printed in 1577. A photo-copy of its title-page was reproduced in the Memoirs of the Madras Library Association, 1941. The title of the book, as it appears in translation, is *Christya Vennakanam*.

Printing at Ambalakad

Though Ambalakad was but a village nearly twenty miles south of Trichur, it occupied a place of pride in the history of early Indian printing, for it was here that the first Malabar types were cut by Joannes Gonsalves in 1577. Quite a large number of books were printed here in Malayalam characters but unfortunately none of them has survived. We come to learn of them from a list preserved in Rome and bearing the name of this place as its printing source. Though Malayalam characters were used in those days for printing both Malayalam and Tamil books, the Tamilians felt naturally handicapped to follow them and hence an attempt was made to devise and cut Tamil type for their convenience. And it is said that one Ignatius Aichamoni, a Tamilian first cut Tamil type in wood for printing a Tamil-Portuguese dictionary. But there is no evidence of it except in a record left by one Fr. Paulinus. The complete absence of early specimens of Ambalakad printing is probably due to the invasion of Travancore and Cochin by Tippu Sultan during which he completely burnt and devastated the books on both the Christian and Hindu religions.

So far we have been dealing with the formative period of Indian printing. The dawn of the 18th century was, however, marked by a vigorous growth and a new life. The fair child of Indian printing had by this time grown into a handsome youth wooing the unsophisticated maidens—the Indian native tongues. And the first sign of this flood-tide of puberty was witnessed when Ziegenbleg, a noble missionary brought out his Biblia Damulica, a Tamil translation of the New Testament in print. He came to realise that unless scriptures and the Bible were provided to the natives of the soil among whom

he preached, in their own vernacular and in large numbers, they could not be so easily won over, the foreign tongues of the original being to them unsurmountable barriers. That is why he translated both the New and the Old Testament into Tamil and even tried to bring them out in print to make them reach a wider circle of readers and enthusiasts. It is said that for printing the Biblia Damulica, his first important work he had to take immense pains for cutting suitable Tamil types. At first he sent specimens of character to far off Halle in Germany, but on getting them he found they were inadequate for his purpose. Instead of abandoning his project he, however, set out shaping and cutting smaller founts himself. This probably caused some delay in the printing of this great work which he started in 1701 and finished in 1711. He also completed the printing of the Tamil New Testament by 1715. But unfortunately he could not bring out his Tamil translation of the Old Testament during his life-time. The first paper mill that was set up near Tranquebar was also the result of his own efforts.

The early Tamil type was short, thick and square. "The characteristic slope and more rounded appearance seem to have been introduced by the Dutch East India Company's press at Colombo".[1]

Printing at Tranquebar

The Christian missionaries were the pioneers even in translation work in India. It was at the Danish Mission at Tranquebar in Tamil Nadu that the First translation of the Christian scriptures appeared sometime in 1714. Two German missionaries also published their Tamil versions of the Bible that very year at Tranquebar. A few more scriptures and sermons might have also been printed here but no authentic record is available testifying to their existence.

Printing in Madras

The next place to receive the new art was Madras. Printing in Madras began after the English captured a press in Pondichery and gave its charge to a great Tamil scholar Fabricius who was a resident of Vepery in Madras. It was this press subsequently brought to Vepery that came to be known in course of time as the famous Diocesan press. It was at this press that Fabricius printed his hymns and his epoch-making Tamil-English Dictionary sometime at

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[1] *Early Tamil Printings* by W. H. Warren, Memoirs of the Madras Library Association, 1941, pp. 39-43.

the beginning of the 19th century. But even though printing had already found a congenial soil in the Madras region, the number of presses even in Madras City was negligible. This was because there had been for long some restriction on the press which hindered the growth of printing. It was Sir Charles Metcalfe who at last lifted the ban in 1835 much to the relief of the educationists, preachers and printers, thus paving the way to a vigorous and extensive printing throughout the country. The printing presses consequently multiplied so much that by 1863 there had been as many as ten presses in the city of Madras alone. Tamil type which had been so long squat and square now received the attention of the fine printer Hunt who refined upon it almost beyond recognition and made it a source of delight. It was with this type that the famous Tamil-English Lexicon was printed in 1862. It was such an excellent work of printing that it may "even to-day stand comparison with the work of any press in the world".[1]

We have so long made a survey of the march of printing in the South Indian peninsula which brings home to us one patent fact that its progress was not really as spectacular as it would have been if it could receive the support and patronage of native talent. As it was introduced and hitherto exploited mostly by foreigners and that too for the propagation of their faith, the common people evinced less interest in it and paid lukewarm support to its cause and consequently printing in its early phase in India was not as vigorous as it was in most countries in the continent. It was however, the Calcutta area that made a departure in this regard, for it could attract considerable local talent and initiate it profitably for the furtherance of the art. That is why the history of Indian printing was written in words of gold in this part of the country.

Printing in Bengal

The earliest specimens of printing in Bengal are connected with the Portuguese who had by the close of the 16th century settled in many parts of the country. There is enough evidence to show that Roman Catholic missionaries, some of Portuguese origin, had by the 17th century their centres in many parts of Bengal. Towards the latter half of the 17th century some Portuguese missionaries undertook to translate works in the Bengali language and compose

[1] Ibid.

vocabularies in order to explain the Christian doctrine among the natives of the soil. Of this Portuguese Bengali literature very little has survived. More well-known among these Portuguese Bengali writers was Manuel de Assumpacne, the celebrated rector of the Portuguese Indian Mission. He wrote two books in all in the Bengali language, both transliterated in Roman alphabet. Of these books the most well-known was the *Kriper Shastrer Arthaveda* which dealt with the doctrine of christianity in an exhaustive manner. It was in the form of a dialogue between a preceptor and a disciple. This was the first important and sustained Bengali composition by a European author. The other work by him was *Vocabulario em Idioma Bengalla e Portuguez*, a Portuguese-Bengali grammar and vocabulary. There were also works by other missionaries none of which has, however, survived. It is of course difficult to say where these books were printed. In all likelihood they appear to have been printed at Lisbon. Another book of the time was "Brahman-Roman Catholic Sambad" which was written by Dome Antonio de Rozario. Formerely a prince of Bhusana he was abducted by the Mug pirates who sold him to the Portuguese missionaries who in their turn converted him into a Catholic Christian. The book was in the form of questions and answers between a Hindu Brahmin and a Catholic priest. A bitter renegade, he attacked Hindu religion with all the ferocity of a fanatic. The book, as it could not be printed, is still lying in its manuscript state in the city of Avora.

But the first book having some Bengali characters and printed in this country is the *'Grammar of the Bengali Language'* written in English by Nathaniel Bressey Halhed, a Judge of the Sadar Dewani Adalat, for the benefit of the civilians of the East India Campany. It was printed at Mr Andrews' press at Hooghly in 1778. It was also at this press that the English translation of *Nildarpan by* Michael Madhusudan Dutta was printed in a later period. Even before this, Bengali characters also appeard in some books written in various European languages and printed in different places of Europe, but they were all printed from blocks and not with individual letter units or movabale types. Some of these books are as follows :

1. *China Illustrata* published at Amsterdam in 1667
2. A book on Indian history, geography etc written by some Jesuit Fathers printed in Paris in 1692
3. *Observation Physiques et Mathematiques* printed in Paris, 1692

4. *Aurungzeb* by Zecbuck published in Leipzig in 1725

5. *Dissertio Selecta* by David Mill published in Leiden in 1743

6. Ain-I-Akbari by Gladwin published in London in 1777. But while all these books supplied merely specimens of Bengali characters by printing them from blocks, Halhed provided in his Grammar some words and complete texts conveying some meaning by printing them all with movable letters and herein lay his great credit.

The birth-story of printing in Bengal really centres round the famous Sanskrit scholar Charles Wilkins and the printing of Halhed's Grammar. Halhed felt the need of founts of Bengali alphabet for printing Bengali passages which he set as examples in the book. He came to learn that his friend Charles Wilkins, a Bengal civilian and a great oriental scholar had already cast certain founts as a hobby and so he appealed to him to cut all the Bengali types needed for printing his Grammar. Ungrudgingly Wilkins took up the work with the fire and zeal of a missionary and cut with his own hands by means of a chisel all the types his friend needed, with great perseverance and care and hence he rightly deserves the title of 'Caxton of of Bengal'. It is impossible to exaggerate the importance of his contribution because it is to him directly and to Halhed indirectly that Bengal is indebted for the establishment of the first vernacular printing press. He was himself the metallurgist, the engraver and the founder. He also initiated Bengali mechanics into the craft and was thus responsible for the introduction of printing in Indian languages. Mr Willkins was later requested by Warren Hastings, the Governor-General to translate the *Srimad Bhagabat Gita* into English for the British readers. Wilkins could do all this because his knowledge of Sanskrit and some other Indian languages was really commendable. Wilkins had an assistant—a Bengalee blacksmith named Panchanan Karmakar who learned the art of type-cutting from his master and became in course of time an expert type-cutter himself. Having learned it Panchanan again taught this art to many others which made the introduction of successful printing in many Indian languages possible. Before the introduction of printing in Bengal, Bengali written characters were different in different regions. It was Wilkins, Panchanan and later on Manohar who standardised Bengali characters and made them acceptable throughout the Bengali speaking world.

After the printing of Halhed's grammar these Bengali types were used by the Govt. press in Calcutta for printing Bengali versions of some acts and regulations of the Govt. There are also other specimens of early Bengali printing which the exigencies of administrative changes and the establishment of the Supreme Court in 1774 brought into being. One of them is the Impey Code written by Sir Elijah Impey, the first Chief Justice of the Supreme Court of Judicature at Fort William translated into Bengali by Jonathan Duncan and printed at the press of the East India Company in 1785. Another specimen is the Bengali translation of the Cornwallis Code translated by Neil Benjamin Edmonstone, the Company's Asstt. translator of Persian who seemed to have a good knowledge of Bengali also. It was printed at the Govt. Press from an improved fount in 1793. Besides these, there are two other Bengali translations of Govt. regulations which were printed in Calcutta in 1791 and 1792 respectively. They are now housed in the British Museum.

But the most outstanding printed book next to Halhed's Grammar is H. P. Forster's "*A Vocabulary in two parts, English and Bengali and vice versa*" printed at the Chronicle press, Calcutta. the first part of which was published in 1799 and the second in 1802. This is the first dictionary in the Bengali language printed in this country.

H I C K Y's
BENGAL GAZETTE;
OR THE ORIGINAL
Calcutta General Advertiſer.

A Weekly Political and Commercial Paper, Open to all Parties, *but influenced by* None,

From Saturday December 9th to Saturday December, 16th 1780.   No. [XLVII]

Towards the close of the 18th century presses were also set up in Calcutta for the publication of gazettes and newspapers. One of them was started by J. A. Hicky in 1780 for printing the Bengal Gazette or Calcutta General Advertiser and another by F. Gladwin in 1784 for the publication of the Calcutta Gazette, the latter using

the same type face as found in Halhed's Grammar with of course
slight modification and change. For example, the final vertical
stroke of *ja* (জ) which was formerly a little away from the main
curve came closer to it and the flag stroke of *ta* (ট) which was at
a low angle became higher and also bolder. Here the face of *ta* (ট)
resembles that of *ta* (ট) found in 14th century inscriptions and in
Upjohn's Bengali-English Vocabulary printed in 1793 at the
Chronicle Press. As regards *Hicky's Bengal Gazette*, there were
no pictures, not even ink-sketches or cartoons in it. This was
because the art of printing was not so well developed in those days.
In place of pictures and cartoons there were caricatures and word
pictures printed by correspondents who wrote under pseudonyms.
Such Satirical writing and lampooning being popular in those
days, *The Bengal Gazette* found much favour with the reading
public though it earned on that very ground the Company's dis-
pleasure. It was published every Saturday.

Printing at Serampore

The year 1799 is a notable milestone in the march of Indian
printing. It was marked by two significant events—the publication
of Foster's *Vocabulary* and the landing of a band of missionaries on
the bank of the Ganges under the leadership of Rev. Dr William
Carey whose name is still shining like a luminous star in the firma-
ment of Indian printing. The year following it is no less significant
because it was in 1800 that the Fort William College, another centre
and spring-head of early Indian printing was set up. Rev. Dr
William Carey who sought to establish a mission in the British
territory was prevented from doing so, but he was not a man to
abandon his project. With the help and co-operation of two other
fellow travellers namely Joshua Marsman and William Ward he very
soon formed a missionary settlement at Serampore in 1799 under
patronage and protection of the Danish Governor, Colonel Bie.
Soon after this he decided to bring out into print the Bengali version
of the New Testament which he had already made ready. Carey, it is
said, wrote out the Bengali text in his own clear hand-writing in
thousands of sheets of paper. It was for the printing of this work
that he purchased a wooden printing press at Rs. 400/- and set it
up at Mudnabati in the district of Maldah. It was from this press
shifted subsequently to Serampore that his first edition of the *Bengali
New Testament* was printed on March 5, 1801. The types of this

work were set by a first-grade printer Ward assisted by Carey's son Felix. This pioneering work was made possible through the help of his teacher and colleague, Ram Ram Basu, "a scholar of the very best natural abilities and a faithful counsellor". The second edition of Carey's Bengali translation of the New Testament was printed in 1803 from a more elegant and smaller type constructed by Monohar, the son-in-law of the eminent local mechanic, Panchanan Karmakar. Carey also translated the New Testament in Sanskrit with the help of Mrityunjoy Vidyalankar whom he regarded as "one of India's best Sanskrit scholars" in order to make it more respectable to the people and got it printed in 1808. This was Carey's second Biblical translation to be printed and published, the first being the Bengali version. Carey then decided upon bringing out translations of the Bible in all important languages of India. But he could not possibly do this without enlarging his press and arranging for cutting suitable required punches. To do so he required the services of an efficient and skilled mechanic immediately. On enquiry he came to know of Panchanan, the assistant of Wilkins. Panchanan, though a resident of Tribeni used to live at Garden Reach, near the residence of his employer Colebrooke, a famous Sanskrit scholar. Carey now tried various means to entice Panchanan out of Colebrook's service, at first by offering him higher wages and better prospects, but none of his plans succeeded. Lastly, Carey made a fervent appeal to Colebrooke to spare Panchanan just for a few days. Unable to understand Carey's motive Colebrooke allowed Panchanan to see Carey at Serampore and this served Carey's purpose. Once he got Panchanan in his thumb, he could easily detain him and utilise his services with the connivance of the Danish Govt. at Serampore and in spite of Colebrooke's petition to the Govt. of India for his release Panchanan continued to live at Serampore because he himself was perhaps a willing conspirer with Carey.

With Panchanan came another skilled type-cutter named Manohar, his own son-in-law and with their help Carey set up a foundry at Serampore to make elegant founts of type in all the East Indian languages not only for their own use but also for sale. Panchanan completed nearly 700 punches for Devanagari letters. As he grew incapacitated for business on account of old age, his son-in-law Manohar stepped into his shoes and assumed full responsibility of the foundry. Manohar, it is said, thoroughly overhauled

the type face which was then in use by making it smaller but bolder and more elegant. He worked at the Serampore Press for more than forty years during which he produced various beautiful founts of the Bengali, Nagri, Persian, Arabic and other characters for which there had already been considerable demand from the old as well as the newly started Printing presses. Bengal and in fact the whole of the country are, therefore, greatly indebted to him for the unique service he had thus rendered to the cause of Vernacular printing. His son Krishna Kumar Karmakar inherited his father's skill and efficiency and had his press named Chandroday Yantra at Serampore which could compete with the Mission Press at Serampore or any other press in Calcutta in respect of quality production.

As Carey's main aim was to impart the knowledge of the love of God revealed in Christ to the people of India he took up in right earnest the task of translating and printing the Bible in as many Indian languages as possible. In fact by 1833 a year before he died the Bible had been translated in 34 languages. The entire Bible was available in Bengali, Oriya, Hindi, Marathi, Sankrit and Assamese, and the New Testament in Telugu, Pushtu, Kashmiri, Khasi, Kannada, Gujrati and so on. In this respect he was truly 'the Wycliffe of the East' as his biographer G. Smith has rightly called him. For as the 14th century reformer and theologian translated the Bible from Latin for the English people Carey gave the Bible in print to South and Eastern Asia in its own languages.

The Serampore Mission Press seems to have performed almost a prodigious work by bringing out more than two lakh twelve thousand volumes in forty different languages in a short span of 32 years between 1801 and 1832. This would appear to be really a miracle if we bear in mind that types for these languages were also for the first time designed and cut. The publications of this press included not only translations of the Bible in the native tongues but also a large number of original works. It brought out some text books in Bengali prose which was then just evolving and also some vocabularies and lexicons and grammars the value of which cannot be overestimated. The Baptist Mission Press was also responsible for the introduction of r, that is, the dotted (ৱ) in place of the stabbed (ব), the North Bengal variety which was in extensive use so long. The contribution of the Serampore Mission Press to the cause of Indian Printing is really immeasurable. It not only

initiated but also standardised printing in most of the modern Indian languages. It was also this press that issued the first Marathi as well as the first Assamese book. The story of the Serampore Mission Press is better told in the old memoirs—"Happily for us and in India at large, Wilkins had led the way and preserved the industry under the greatest disadvantage with respect to materials and workmen. Soon after our settling at Serampore God brought to us the very artist who worked with Wilkins in that work and in a great measure behind the ideas. By his assistance we erected a better foundry and although he is now dead, he has so fully communicated his art to a number of others that they carry forward the work of type-casting and even of cutting matrices with a degree of accuracy which would not disgrace European artists". The dead artist referred to above as Wilkin's assistant was Panchanan whose apprentice Manohar was.

By 1836 the Serampore Mission Press lost its former glory with the death of Marshman, the life and spirit of the Mission. Though Carey's translation of the Bible could not inspire any enthusiasm because of its fantastic vocabulary in close imitation of English, other works of the Press, notably those in Bengali and Sanskrit were highly popular and dear to almost every Bengalee heart. Bengal is particularly grateful to Carey and his Serampore Mission Press for the printing of such books as Bopadeva's *Mughdhabodh*, Carey's *Sanskrit Grammar*, *Valmiki Ramayan* ed. by Carey and Marsman, *Vidyaharabali*, a book on Medicine translated by Carey's son Felix, the *Digdarshan*, a monthly magazine and the *Samachar Darpan*, a weekly etc. Though Carey could not make much headway in winning over the people into the fold of Christianity by printing the Bengali translation of the Bible and by distributing free copies, it is certain that he won many a Bengalee heart by publishing the two most popular national epics namely the *Ramayana* by Krittibash and the *Mahabharat* by Kasiram Das and by making them available to every Bengalee home.

Fort William College and Its Role

A year after the establishment of the Serampore Mission, i.e., in 1800 the Fort William College was founded in Calcutta in the Lalbazar area due to the earnest efforts and initiative of Lord Welesley, the-then Governor-General of India, for imparting

knowledge of the Indian languages to British civilians. The authorities of the College therefore, felt the need of publications in Indian languages without which instruction in these languages could not be properly imparted. The College authorities, therefore, encouraged printing presses in Calcutta to cast types and print books in Indian languages. But as most of these presses were in the hands of the Europeans or Anglo-Indians, the founts of Indian language alphabets made by them were not satisfactory. Hence the College authorities began to encourage the Pundits and Munshis to establish foundries for good, standard founts of Indian alphabets. They also offered to patronise those presses which would use such improved founts. The teachers of Parsi, Hindi, Bengali and other departments of the college designed improved founts for printing books written by the Professors of the college. It is said that the improved Bengali founts were modelled on the handwriting of Kalikumar Ray, a Bengali teacher of the College and they were cast by Panchanan Karmakar. These characters were much more graceful than the first Bengali types which, it is believed, were modelled on the handwriting of one Khusmat Munshi of Hooghly. It is also interesting to note that it was at the college press of Fort William that printing was first used for Hindi works. The role of the Fort William College in the printing of Indian language book is, therefore, very significant, and it will always occupy a place of honour in the history of printing in this country.

Of the Fort William College group of writers Rev. Carey, Mrityunjay Vidyalankar and Ramram Basu were the most remarkable. Lord Welesley had already heard of Rev. Carey's vast knowledge of Indian languages and so he requested him to take charge of the departments of Bengali and Sanskrit and subsequently of the department of Marathi as well. Carey accepted the offer and joined the college as head of the departments of Bengali and Sanskrit in 1807. He acquired an intimate knowledge of Bengal and the Bengali language which is clearly evident in his work "*Kathopakathan*" (Dialogue) which reveals a true-picture of the social life of Bengal in those days. It is full of rustic humour, cheap laughter, vulgar wrangling of rural women folk and so on. Indeed, it is such a lively book holding mirror to the life of the time that some even feel doubt about its authorship and seek to attribute it to Mrityunjay Vidyalankar. His other book '*Itihashmala*' published in 1812 is no

book of history but a book full of gossip and idle stories. Both the books were however, meant for teaching common parlance to Bengali civilians.

Ramram Basu's 'Pratapaditya Charit' was the work to have earned the glory of being the first printed literary work in Bengali language. It is, however, unreadable because of frequent recurrence of too many unfamiliar Parsi words. Mrityunjay Vidyalakar who, in the words of Marsman, "was a colossus of literature" and who was no less important than the other two was the Head Pundit of the Fort William College. His knowledge of Sanskrit classics was unrivalled and his Bengali composition had been unsurpassed in respect of ease, accuracy and vigour. He was the author of so many works including Rajabali, Prabodha-Chandrika, Battrish Singhasan, Hitopadesh etc. But his was a style which closely followed that of great Sanskrit authors like Dandi and others and consequently it was hardly distinguishable from Sanskrit. There were other pundits as well in the Fort William college like Ram Jaya Vidyasagar, son of Mrityunjoy Vidyalankar, Narottam Basu, son of Ram Ram Basu, Golak Nath and Rajib Lochan whose contribution to the growth of Bengali literature and language and their printing was also significant. Though the Fort William college was set up by the East India Company mainly for teaching Indian languages to the civilians, the importance of the college remained by no means confined to the practical need of the rulers. This great institution also played a significant role in the creation of Bengali prose literature as well as in its production in printed form. And what is striking is that it was this secondary work—the by-product of this great seat of learning and culture that gave to it a lasting name in the pages of history. The college, however, began to lose importance as a seat of the growth of modern Bengali Prose literature since 1815 when Rammohan, the path-maker of modern India, appeared in the field with a powerful pen to exploit the forgotten and hitherto unexplored Upanishadas.

Private Presses

By the second decade of the 19th century quite a few native publishers also ventured into the art and began to exploit the hitherto unexplored region of common Bengali and Sanskrit works. One of such printers was Ganga Kishor Bhattacharyya who brought out an illustrated edition of Bharatchandra's Annadamangal, the first

of its kind in India, from his Bengalee Printing Press sometime between 1818 and 1822. A press for printing Sanskrit works in Nagari types was also set up under the name of Samskrita Yantra by one Baburam at Kidderpore under the patronage of the famous Sanskrit scholar Colebrooke. There was still another Samskrita yantra started for printing the Sanskrit texts prescribed for the students of Government Sanskrit College. This press later on passed to Lallulal, a Hindi teacher of the Fort William College who in 1815 published from this press the *Vinaypatrika* of Tulsidas, the first book of old Hindi literature to appear in print. There was a famous press in Sovabazar in North Calcutta owned probably by one Biswanath Dev which brought out in bold and elegant types in 1823 a beautiful edition of *Kankan Chandi* edited by Ramjay Vidyasagar. Printed matter gradually attracted such a wide circle of readers that by the forties of the last century the whole of the famous 'Bat Tala' area in North Calcutta was full of slender printing houses and flooded with their cheap, rickety output.

Early Printing of Marathi Books

As regards Marathi books printed in this country, the European missionaries were also the pioneers. To preach the doctrine of Christianity and the Gospel of Christ, they had to turn for help to the native languages for bringing out popular translations of the Holy Bible. It was the Serampore Mission Press that scored the first goal even in this respect by printing and publishing Marathi books of which the Bible and the Marathi-English Dictionary were the most remarkable, the former being printed in 1807 and the latter in 1810. In the meantime the Bombay Courier, a premier newspaper of Bombay appeared in 1792 in three different important languages— English, Marathi and Gujrati.

Early Printing in Gujrati

The popularity of printed books in different Indian tongues was, as it was also natural, almost spontaneous and there were no people in any part of the country that did not like to see their own language books appear in print. It was this desire that prompted Gujrat to introduce printing in her own character and to cut and mould type for that purpose. Accordingly Gujrati type was first moulded by B. J. Chapgar sometime in 1797 and the first book to appear in this character was the "*Illustrations of the grammatical parts of the Gujrati,*

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Marathi and English languages'' by Dr. R. Drummond, which was published in Bombay in 1808.

Long before this an attempt was made by no less a man than Shivaji Maharaj himself at setting up a press somewhere in his own kingdom but his effort fizzled out because of some practical difficulties. He, however, secured a press, but as he could not set it up, he sold it to one Bhimaji Parakh of Gujrat. Parakh, however, did not keep it idle but set it up without delay and ran it more or less efficiently with the help of a printing expert from England.

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CHAPTER VII

ILLUSTRATION

"Art still has truth; take refuge there!"
—Matthew Arnold

Books have been decorated or as we say, illustrated with drawings and paintings from the earliest times. The ancient Egyptian manuscripts of the *Book of the Dead,* the ancient Greek MSS like *Herbals* were brilliantly illustrated. The illuminated manuscripts of Homer, Virgil and Terence dating not later than the 4th century A.D. and surviving even now suggest what older manuscripts were perhaps like. The oldest of the illustrated scrolls that has survived is perhaps the Egyptian *Ramesseum Ceremonial Papyrus* which was made as far back as the second millennium B.C. All these manuscripts belong to the realm of beauty. We can also derive from their illustrations a very good idea of the art of the period, its social condition, manners and customs, costumes and dresses and also its style of architecture. Some of them again have provided us with the most authentic portraits of some celebrated persons, the work of the illuminators themselves but for which the world would have perhaps never come to know of their likeness. The portrait of Chaucer, an instance in point, thus first appeared as a painted illustration in a manuscript. But decoration or illustration was no regular feature of the early manuscripts. It was only in the middle ages that the regular form of book decoration took place. What contributed most to the progress of the art of illumination as a distinct branch of pictorial ornamentation were the sumptuous taste of Byzantine society observable in the early Byzantine manuscripts and the spread of Pergamene vellum which being solid provided a more opaque ground for gold and colours than papyrus. Most of these books are often prized not so much for their contents as for their art—the art of decoration and illumination. In fact they contained all sorts of decorations such as baboons, birds, freaks, strange creatures such as 'a rat with the head of a crow', 'a fish with a woman's head' (Mermaid), 'a winged horse' etc., all illuminated in the colours of the rainbow, gold and silver. Such manuscripts were often made for kings and queens, courtiers and nobles and

ILLUSTRATION 213

sometimes also for private ownership. There are still a few illuminated manuscripts and splendid hand-written books on display in the British Museum like the famous *Book of Hours* and the well-known *Psalters* which clearly indicate what height the illuminator's art had reached in that remote age of world's history. The early manuscripts generally contained three types of decorations :—

(i) Rubrication, i.e., painting of capital letters commonly called Initials in red and blue.

(ii) Illumination, i.e., painting of the letters in liquid gold and silver in the early period and after the 13th century from burnished leaf.

(iii) Miniature painting of scenes sometimes merely decorative and sometimes illustrative of the subject-matter of the book.

All these processes were not necessarily the work of a single man, but were rather in most cases the work of different hands.

Difference between Decoration and Illustration

Though decoration and illustration are often used in the same sense, there is really some difference between the two. Decoration was intended primarily to beautify the book in which it was used, but illustration was intended primarily to elucidate the text to enable the reader to understand the events narrated or the theme discussed in the book. But though these two processes of embellishment are different, they can by no means be kept separate, for there are many things to be found in books which are characteristic of both to a great extent.

Illuminated manuscripts used to contain (a) decorative page-borders, (b) decoration in different places such as at head or foot of the page, between columns of the writing, between sections of the text and (c) miniatures in which the idea of decoration was mingled with that of illustration.

Even the advent of printing could not kill illumination all at once. The early printers rather imitated these things in their own production. For there are copies of books from the earliest Mainz presses which are elaborately illuminated. Even in Italy during the Renaissance printed books used to receive illuminators' art. But such things appeared only in costly volumes. In ordinary printed

books decoration consisted of rubricated capitals in red and blue, conventional borders, and so on.

In printed books there was still a third variety of ornament. They were devices, coats of arms etc., which were intended either to add beauty to the works or to identify them with the publishing houses which brought them out or with particular patrons under whose protecting wings and sunshine of favour the authors thrived.

So far as illustration proper was concerned, it did not appear in quantity in printed books until nearly a century had elapsed since the invention of printing and whatever little was produced by wood-cuts was mostly crude. Work of much better quality appeared as late as 1500 from the press of the famous French Printer Antoine Verard and still later since 1550 from the press of the famous English printer John Day.

Now, a question may arise—Why should a bibliographer or a librarian should study illumination, decoration and even printed illustration at all when they appear to have no concern with these things? The answer to this question is not far to seek. First, the study of illumination and miniatures as monuments of medieval art is not only useful for its own sake but also for some utilitarian purposes. It enables them to fix the date of the manuscript, to determine the country where it was produced and so on when such information is not found in colophons of early manuscripts. So far as printed illustrations are concerned bibliographers and librarians must study them for two purposes : first, to recognise them when found and to assess their value and secondly, to be able to choose the most suitable process from the points of view of aesthetic suitability, cost and faithfulness of reproduction. Hence if they are to do justice to their work they should know all the technical principles on which each illustration method is based. The study of illustration processes will surely appear to be dull to them if they lose sight of this end.

Three Main Classes of Illustration Processes

Technically, illustration processes may be divided into three main classes : Relief process, Intaglio process and Planographic process.

Relief or Letterpress process : In this process printing is done

ILLUSTRATION 215

from a raised surface as in ordinary letter press printing. In most cases the design remains standing in tact while the background is cut away. In this process ink is rolled on the raised surface of the design cut into relief from which it is transferred to paper in an ordinary printing press. The reverse of this process is Wood-Engraving which in spite of its name is in fact a relief process. The chief advantage of relief illustration processes is that they can be set up and printed together with normal type in the press. The most important relief processes are Woodcuts, Wood Engravings, Half-tones, and Line-blocks or Zincography.

Intaglio process, on the other hand, uses a block or plate in which the lines of the design or picture are incised i.e., cut in its surface. Hence the printing surface in this process is below the surface level of the plate or block. The whole plate is first inked and then wiped clean leaving the ink in the incised lines and the paper is then pressed so hard into the lines that it receives the ink from them to form the picture.

The principal distinguishing mark of the intaglio process is the 'plate line which appears round the picture like an indented frame as a result of heavy pressure that is needed in this process. The plate line is, however, absent at times, but that is due to the following reasons :

(a) If the leaf has been cut down by the binder ;

(b) If the plate was as large as the sheet or even larger than the sheet ;

(c) If the illustration was printed by the offset method.

But the Intaglio process has a serious disadvantage. As strong pressure is needed to print from intagalio plates, it is impossible to print them along with type-set text. They are therefore, printed on a page by a second impression and consequently, they often appear alone on inserted plate-leaves. At any rate they hardly form an integral part of a book. Another fatal defect of this process is that as a result of heavy pressure of the press the edges of the incised lines in the copper plate gradually flatten and the finer lines grow faint by and by and hence the subsequent impressions in this process are not as distinct as the early ones.

The principal intagalio methods of illustration are Copper-

Engraving, Drypoint, Etching, Stipple, Mezzotint, Aquatint and Photo-gravure.

Planographic process : This process, as its name implies, uses a plane or flat surface with neither reliefs nor incised cuts. The design is drawn out with some greasy crayon on the flat surface of stone or metal from which impression is taken on paper. Printing in this process is accomplished because certain areas on the flat surface of stone or metal accept ink while others repel it. The lines of the picture in a planographic process, as we have already stated, consist of a greasy substance. So when the paper is pressed against this surface, it only takes ink from the greasy inked lines of the design because other parts of the stone or plate which do not require to hold ink remain ink-resistant, being constantly washed with water.

The main planographic process are *Lithography, Photo-lithography, Offset, Pantone, Collotype* and its different variations like *collography, collogravure, aquatone* etc.

Relief Processes

Wood-cut : This is the oldest process of illustration. Woodcuts are sometimes called xylographs. In this process a plank of soft wood, generally pear or beech, is used and the design is drawn on its surface in reverse. The cutter then cuts away with a knife those parts which are to be left white. That is to say, only the design that is to be printed in black remains standing in relief. So when ink is dabbed on the block, only the lines of the design standing in relief receive ink. As this is a relief process, types and woodcuts can be printed together in the press. In the 15th century block books both letters and illustration were cut into a single plank of wood. Woodcuts are fairly coarse as the black lines tend to be thick.

The earliest evidence of woodcut is found in a chinese manuscript dated 868 A.D., which is now in the British Museum. It is a copy of the *Diamond Sutra,* a Chinese translation of a Sanskrit work of Buddhist scriptures. Woodcut printing better known as xylography was also in vogue in India as early as the 4th century A. D., for the decoration of fabrics. It was only with the introduction of paper in the latter half of the 14th century that its use for illustration spread in Europe. The earliest known dated woodcuts are the

ILLUSTRATION 217

pictures of the Virgin dated 1418 and of St. Christopher dated 1423. The former is now at Brussels and the latter is in the John Rylands Library, Manchester. These seem to have been produced in number for sale among the pilgrims visiting the shrines.

It was Albrecht Pfister of Bamberg who was the first printer to have used woodcut illustrations in printed books sometimes between 1460 and 1462. But as his woodcuts were very crude, they did not prove successful. It was nearly a decade later that they flourished once again in South German towns. Early German woodcut used a bold, strong line and was very vigorous. In Italy where the art was introduced later it was more graceful. The work of the Venetian and Florentine cutters was still more charming. In the late 19th century William Morris, the famous poet-printer revived decoration and used in his Kelmscott Press books woodcuts for illustration, borders and capital letters which consorted well with his types.

Soft metal instead of wood was also used in the late 15th century more for ornamental initial letters than for illustration. But metal cuts cannot produce any sharp-edged effect as wood-cuts can do.

Lino-cut : A modern development of the woodcut is the Lino-cut in which linoleum is used in place of wood. Though the principle remains the same, the effect of lino-cut is very coarse.

Wood Engraving : This is the reverse of the woodcut process and in spite of its name it is a relief process. It differs from woodcut in that a harder wood, generally box is used in it and the design is cut into the wood in reverse with a sharp-pointed graver and not with a knife, leaving the background standing in relief. The background is then inked and printed from and as a result the drawing appears as a series of white lines against a black background. The design in this process is thus printed white, but there is nothing to prevent the use of black line and white line together in one block. In this process more subtle and elaborate effects are obtained than in woodcuts.

Wood Engraving flourished in England during the 19th century. It was Thomas Bewick who was its first successful exponent. He succeeded in producing not only black and white tones but also intermediate shades of grey in his drawings of birds and animals. Most

periodicals and books of the time were illustrated by this method. Even in the 20th century Wood Engraving is the only old process still found in commercial use. Really speaking nothing has raised the standard of book production as Wood Engraving.

Line Block or Zincography

It is a photo-mechanical process which is used for reproducing designs or line drawings in black and white and hence it is also known as *line engraving*. It is a relief method by which the black lines of the design are raised on the finished block in order to print them black while the portions that lie below the surface print nothing because they receive no ink. It is also possible to produce light and shade by this method by varying the thickness of the black lines or the distance between them. It is the cheapest method of producing suitable originals.
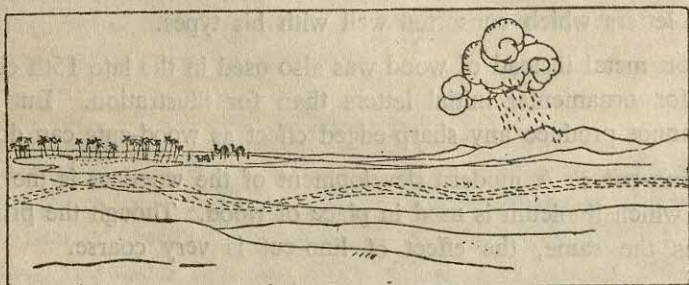
Line-Block

The process owes its name to zinc because zinc is the metal commonly used for making blocks, copper being rarely used except for very fine work and consequently the line blocks are often called zincos. The process was invented sometime in the latter half of the 19th century by Eberhard, a Bavarian (German). It is most suitable for reproducing wood-cuts, pen and ink sketches, diagrams, maps, title-pages and even a page of type provided it does not contain tones. The method is as follows :—

At first the original design drawn in sharply defined black lines on white paper is photographed in a process camera and a negative plate is taken. The photographic negative is then exposed to light over a zinc plate coated with a sensitive emulsion of albumen and ammonium bichromate. The image is thus transferred to those parts of the zinc plate which have been hardened by the light passing through the trans-

ILLUSTRATION 219

parent parts of the negative while other parts of the plate being un-affected by light remain soft and soluble. The plate is next rolled up with a greasy ink and is then washed with water. One can now see only the image in reverse covered with ink and nothing else because water has washed clean the soluble parts away. At this stage the block is known as zinc print. The zinc is slightly warmed and then dusted with powdered resin which sticks to the inked portions of the plate. The plate is heated further till the resin melts and forms an acid resistant top over the lines of the design. The back and edges of the plate are then protected with an acid-resisting varnish and the plate is given a bath in dilute nitric acid which eats away the surface of the metal wherever it is unprotected, leaving the protected lines standing in relief. Etching is of course done in successive stages according to necessity. When completed, the plate is mounted type-high so that it can be printed along with the text of the book.

Colour Line Block can also be produced in this process, but in that case in lieu of one plate separate plates are required for separate colours. Each of these plates is to be etched as in ordinary line block process and then painted with lithographic ink, each plate receiving only one colour. That is to say, blue areas are to be painted on one plate, red areas on another and so on. All the plates are then over-printed by registering them properly so as to get the finished print. In this process the black outline plate should be printed last of all. It should, however, be borne in mind that this process can reproduce only flat colour and no continuously varying tones.

Half-tone

It is also a relief process and as its name implies, it can reproduce not only black and white but also intermediate tones of varying depth and necessity. It is, therefore, suitable for the reproduction of such illustrations as photographs, wash drawings, oil-paintings, water-colour paintings and so on in which the designs consist of graduated shades or tones, in which light and shade often merge into each other. The process was invented by George Meisenbach in 1882 and was introduced into England three years later by Meisenbach & Co. In this process the effect of continuous tone is obtained by breaking up the original design into a mass of minute individual dots of varying

sizes but of equal space. These dots produce a sort of optical illusion. One can however, see it in its crudest form in any newspaper. The darker parts of the design are formed by larger dots nearly touching one another while the lighter parts are formed by smaller dots, so small sometimes that they are scarcely noticeable.
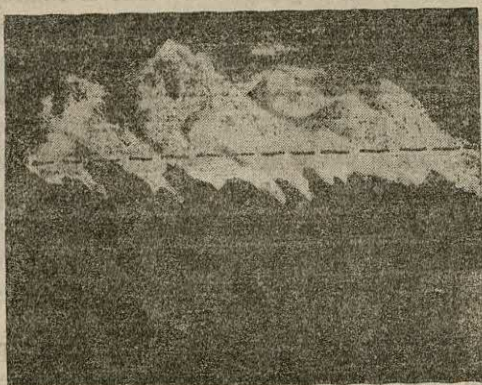
Half-tone

This pseudo-photographic process of illustration was very popular around the turn of this century and was used for printing photographs or drawings in magazines and newspapers. The process is still used for all the ordinary run of books because it is cheaper than other methods. Its effect is also satisfactory because it is capable of printing sharp, brilliant and faithful reproductions. The process of producing half-tone plates is as follows :—

The original photograph or drawing is photographed in a process camera by inserting a special screen in it. The screen consists of two glass plates each containing black parallel lines of uniform size and spacing. The two plates are stuck together in such a way that their lines cross each other at right angles thus forming a screen of tiny, transparent squares of glass separated by opaque lines. When the design passes through the screen in the process camera, it gets broken up into dots of varying size instead of appearing in continuous unbroken tone on the negative plate. A negative is then taken and developed and placed on a copper or zinc plate coated with a solution of albumen and bichromate and hardened. It is then exposed to

ILLUSTRATION 221

light. As light passes through the transparent parts of the negative it hardens the corresponding parts of the zinc or copper plate while the other parts of the plate protected as they are by the dense parts of the negative remain soluble. After removing the negative the copper or zinc plate is washed with a clean flow of water which dissolves the soluble parts leaving the hardened parts still in tact. The plate is further soaked in aniline dye to make the picture distinct. This plate

is now heated in order to turn the coating into an acid-resisting enamel. After protecting its back and sides the plate is given an acid bath which eats away the unprotected parts between the dots leaving the dots themselves in relief. The larger dots on the plate represent the darker parts of the original while the smaller dots represent the lighter parts. The smaller dots are sometimes etched so completely that they do not print at all. When the plate is thus completed, it is mounted on wood or some other material to bring it to type-height and it is then ready for the press. This is how a half-tone plate is made.

For printing half-tone illustrations Art paper or the like having a shiny surface is required; otherwise the very small dots will not print and the picture will be indistinct.

For finer reproduction very fine screens having 200 or more lines to an inch are required. But for ordinary good work the number of lines to an inch on the normal screens may vary from 80 to 150 though for newspaper illustrations generally coarse plates having 50 to 65 lines to an inch in each are used.

Colour half-tone

Colour half-tone process is used more often than others in books because it is at once cheaper and more convenient. Moreover, many people consider this process to be the best and also the most accurate means of colour reproduction. In this process three negative plates are taken in three primary colours—one to record all the yellow contained in the original, another to record all the red and the third to record all the blue. So far as secondary colours like orange, green and violet are concerned, they can be produced by mixing the primary colours in varying proportions. If all the primary colours are there in the original drawing, colour separation is possible by means of filters which are nothing but pieces of celluloids or glass on the lens in the camera. For example, to produce a block to print yellow a dark blue or blue violet filter is used to exclude yellow and emphasise the other two colours. The developed plate shows the pure yellow part as transparent glass and the red blue parts opaque. The transparent part of the negative allows the light to project on to the corresponding parts of the sensitised copper plate when it is exposed to light. Similarly to produce a red block a green filter is used to exclude red and emphasise yellow and blue. For the blue block a red filter is used. The light parts of each negative thus represent the primary colours while the dark parts represent other colours which are not to be produced on that plate. For producing true black colour it is better to prepare a black plate and to print it last. Ordinary black can, however, be produced in a different way, by printing red, yellow and blue on top of each other. As regards the order of printing it is the yellow plate which is printed first, then the red and then the blue and last of all, the black. Indeed most good colour half-tone printings now-a-days are in four colours—yellow, red, blue and black.

There are now cameras in which all the three colour negatives can be exposed simultaneously. This helps the colour reproduc-

ILLUSTRATION 223

tion of even moving objects. Colour half-tones do not always use all the three colours—yellow, red and blue. Satisfactory results are sometimes obtained by using only two colours either including or excluding black. These are generally printed on a press having two separate impresssion cylinders and separate inking arrangements for each colour.

Intaglio Process

HAND PROCESSES

Copper Engraving

It is an intaglio process of illustration characterised by depth of colour, velvety richness, delicacy and smoothness of the lighter tones. It is a hand process. Though the process was rarely adopted for illustration purposes until the middle of the 16th century, a few examples dating from the 15th century have been found which clearly show that the process was not altogether unknown even in that age. Copper engraving seems to have received its first boost at the hands of the engravers at Bruges and Florence who were at work in the latter half of the 15th century and the first book that came out with copper plate illustration from Bruges was an edition of Boccaccio's *De Casibus Illustrium Virorum* which was published in 1476. There are a few more examples belonging to the 15th century, but their number is very insignificant compared with wood-cuts and wood Engravings. Copper Engraving became very popular in the 17th and early 18th centuries and after a long lapse of time the process was again revived on steel in the early part of the 19th century. Copper engraving is used even in the present century, though on limited occasions, for fine book production. The reason why copper plate illustration was so rare in the 15th century books seems to be that it was difficult to print copper engraving which was in intaglio with text material which was in relief.

The copper plate on which the design is drawn should be finely polished. The lines of the design are then engraved with a graver. As the graver cuts into the surface of the copper plate, it throws up a burr or ridge along each side of the furrow. To get clear, sharp lines this burr is removed with a scraper. The plate is then inked

and wiped so carefully that the incised lines of the design retain ink. It is then placed with a soft, dampened paper in a copper-plate Press which exerts so much pressure that the soft, dampened paper is forced into the lines and thus receives ink from them. Copper engraving produces clear, sharp lines. It is therefore, obvious that the thickness or richness of colour depends much upon how deep the lines are and what quantity of ink they can hold.

Steel Engraving

Copper being soft proved to be unsuitable for taking successful impressions for large editions and hence steel came into use as a suitable substitute in the 19th century. As steel is a hard metal, steel plates allow finer lines to be easily cut. These lines are sometimes so fine and delicate that they far surpass the delicacy of copper cuts. Steel engraving is in fact a line process attempting at tone. The process, however, ceased to be in use since the middle of the 19th century and has not yet been revived.

Drypoint

This method of illustration does not differ much from Copper Engraving. It was first introduced sometime in 1480s by an unknown German engraver. Since then the method gradually gained popularity and remained in use throughout the 17th century. The method, however, fell into disfavour in the 18th century receiving further revival only in the 19th when it began to be used again by some leading etchers. The method of making Drypoint plate is as follows :—

The lines of the design are drawn on a copper plate with a pointed pencil of steel which throws up a wavy copper ridge along the sides of the furrow. The ridge known as the burr is then allowed to remain and is not removed with a scraper so that when the plate is inked it may contain a quantity of ink. The ink on the ridge together with that in the furrow, therefore, imparts to the resulting printed lines a characteristic velvety richness. But the burr, as it is very delicate, flattens soon under printing pressure and hence the process is very effective only in early impressions.

ILLUSTRATION 225

Etching

Etching is also an intaglio method of illustration in which the lines drawn on the copper plate with a steel-pointed tool are bitten out by the action of an acid. The method is as follows :—

The surface of a copper plate is first covered with a thin ground made of a mixture of wax, gum and resin. This mixture is spread by melting it and rolling it evenly over the plate. The ground thus formed is then darkened by holding it over a lighted candle. The etcher then draws the design on the darkened ground with a blunt steel needle or tool which goes through the wax and uncovers the surface of the copper but does not cut the copper. The plate is then placed in a bath of dilute nitric acid after protecting its back and sides with a coating of some acid-resisting varnish. The acid bites into the copper along the lines exposed by the etching needle. In this way when the finer lines are sufficiently etched, the plate is removed from the bath and these finer lines are protected with some acid-resisting varnish. The plate is then again given an acid bath so that the acid may bite more deeply into other lines which require to appear more prominent in the final print. Generally the process of 'biting' and 'stopping out' is repeated so long as the etcher does not get all the grades of tone required in the different lines of the design. The process is thus capable of producing an immense range of tone from 'feathery touches to black patches'.

Etched plates are printed in the same process as Copper Engravings. The etched plate, when inked, contains ink in the bitten lines of the design below the surface of the plate. When the inked plate and paper pass between two horizontal rollers of the press, the paper is pressed so hard with pressure into the etched lines that it absorbs their ink.

Though etching is an intaglio process, the great poet William Blake used it to produce a relief printing surface. His method was to immerse the coper plate containing the outlines of the illustration in acid and to keep the plate in it until the background was completely bitten away. Thus his verse and illustrations stood up in relief. It was by this relief etching method that he produced not only his own masterpieces but also those of many other great poets containing brilliant illustrations the like of which is rare even now.

Stipple. It is an intaglio process of illustration which is often used in conjunction with some other process. Stipple engraving is principally used for adding shade to an engraving or an etching. The method is as follows :—

The copper plate itself or the ground as in an etching is pierced with an etching needle or a roulette and this produces a close mass of dots which then look very much like pencil shading. The portions thus uncovered are then bitten with acid. When the plate is inked and carefully wiped, the stipple dots hold ink and they print black on white paper.

Mezzotint. It is also an intagilo proces of illustration. It is capable of reproducing continuous tones more powerfully than even stipple. It was invented in Germany in about 1642 by Ludwig von Siegen who was a soldier by profession and by inclination an amateur artist. It was, however, soon introduced into England in the second half of the 17th century by Prince Rupert of the Rhine who had been wrongly considered for long to be the father of this invention. This process is different from other processes in that here the engraver works from black to white.

In this process the print is taken from a plate either of copper or of steel. The plate is first roughened all over by means of a tool called rocker which has curved edge having cutting teeth. The plate is uniformly rocked in all directions so that innumerable small holes apper all over which, if inked and printed from at this stage, give a more or less uniformly black impression. The design is then transferred to the plate, sometimes by light etching. While the rocker uniformly pricks the plate, it also throws burrs on the plate's surface which, therefore, absorb ink and impart a velvety texture to the print. If the engraver requires gradation in tone, that is, if he is to produce intermediate tones in between the deep black and the white, he can easily do so by removing the burr according as he requires, with a tool called a scraper. If he wants high lights in certain parts, that is, if he wants to print certain parts absolutely white, he not only removes the burr from those parts but also varnishes them so that they will hold no ink at all and hence they will appear white in printing.

Mezzotint plate produces a rich velvety tone and was used in the 18th and 19th centuries for reproducing oil paintings because the

ILLUSTRATION   227

gleam of the sky and water, gloss on armour, firs, satin and velvet dress, hair etc., could not be produced so well by any other process.

Aquatint. It is also an intaglio process of illustration. As its name implies, it imitates water colours and has been regarded for long as the most suitable process for that purpose. Though it is difficult to assign its invention to a single person, the name generally associated with this invention is that of Jean Baptiste le Prince who, it seems, invented this process sometime about 1768.

Aquatint is a form of etching which can produce clearer tone effects than the Mezzotint process. In this method the outline of the picture is at first drawn on a copper plate which is then grounded either with resin dust by shaking it in a box or with a solution of resin in alcohol. In the former method the plate is heated and this half-melts the grains of resin to form individual particles or globules on the plate. These hardened particles or globules then act as the ground. In the other method as the alcohol evaporates, the resin remains in minute grains and cracks. But whether dust-ground or spirit-ground the plate is then etched and as a result the acid eats round individual globules or particles. The parts which require to be printed darker are etched longer while the lighter parts are stopped out with varnish. In this way the method produces a series of gradation of tone from light to dark by means of 'biting' and 'stopping out'. The 'spirit-ground' method is, however, better than the other since it produces a more even texture and a more brilliant print.

Aquatint had its day until about 1830 when it gave way to lithography.

PHOTO-MECHANICAL PROCESSES
Photogravure

This is a photo-mechanical intaglio process which was invented in 1879 by Karl Klic of Arnau. It is principally employed for the reproduction of oil-paintings, photographs and such other forms of illustration as require for their effect both depth and velvety richness. Photogravure is cheap enough provided large editions are printed. It is, however, expensive, sometimes almost prohibitive for small, ordinary editions. That is why it is seldom used except for the best work and for 'runs amounting to tens of thousands of copies'.[1] It is, therefore, used specially in magazine work.

1 Esdaile, *A Student's Manual of Bibliography*, p. 182.

In this process as in Half-tone a screen is used which breaks up the design into squares. But unlike in Half-tone the lines in this screen are transparent and the intervening squares are oblique. When the negative of the original picture is photographed on to a zinc plate the darker parts of the original appear in the form of larger dots than the lighter parts on the zinc plate. Those parts of the plate which require to be protected are then given an acid-resisting coating and the whole plate is then immersed in acid which etches the darker parts almost entirely while it touches the lighter parts in the least. But as the parts directly under cross-lines of the screen have not been affected at all by light, they remain untouched by the acid. So when etching is over, the plate is found to contain a series of tiny ridges as well as countless tiny hollows between the ridges. So while printing, the plate holds varying quantities of ink and produces a fine gradation of tone, the deep-etched hollows holding more ink while the shallow ones holding little and sometimes no ink at all.

Besides Photogravure there are also some other photo-mechanical processes like *Machine Photogravure, Colour Photogravure* and *Rotogravure* of which the last one is very expensive but most suitable for long runs.

Planographic Process

HAND PROCESSES

Lithography

It is a planographic process in the sense that in it the printing surface is neither raised as in letterpress nor recessed as in Photogravure, but quite flat. The printing surface is divided into printing and non-printing parts by applying the well-known phenomenon that water and grease do not mix. The process was discovered by Alois Senefelder in 1798. Though the process was very popular in the early 19th century, it suffered a decline in the latter half of the same century for book illustration. The process however, received a further boost when lithoprinting, Photolithography and offset lithography were developed. To-day lithography is associated with a number of related process e.g., Pantone and Collotype.

The principle behind lithographic method is that the print in this process is taken from a flat limestone which is so treated that it retains

ILLUSTRATION   229

ink only in those parts of its surface which bear the design while the rest of the surface remains ink-resistant. The process is as follows :—

A flat Bavarian limestone is first grounded with flint or sand to impart to it an even drawing surface. The artist then draws his design upon it with a greasy chalk pencil. These greasy lines of the design will, therefore, accept ink but repel water.

An 'etch' of a dilute solution of nitric acid is then applied to it which does not affect the greasy lines of the design but acts on the remaining parts of the stone, eating into the surface slightly. This also prevents the greasy lines of the drawing from spreading. A solution of gum arabic and water is then applied to the surface of the stone further in order to prepare it for the subsequent removal of the greasy chalk or crayon. The stone is then washed with turpentine which removes the greasy chalk or crayon. When the turpentine completely evaporates, the gum arabic is also removed from the parts which do not bear the lines of the drawing by washing it with water.

At this stage the greasy lines of the design are found embedded in the pores of the stone, their colouring matter having already been removed. So when printing ink is rolled on it, the greasy parts of the surface accept the ink but the wet parts reject it. A sheet of dampened paper, cut to size, is then laid on it and both are placed in a lithographic press which exerts pressure strong enough to make the sheet receive the impression.

As stone is very heavy and as it requires a flat-bed machine, substitutes like zinc or aluminium plates are now being used so that they can be bent round cylinders for printing from them on a rotary press. Moreover, they are cheaper and are not liable to get broken. Lithography is particularly suitable for reproducing paintings, photographs and wash and pencil drawings.

Auto-Lithography or Artist Lithography

It is same as described above, the only difference from other processes being this that it is an original work of the artist in which 'no copyist need intetrpose himself between the artist and the finished illustration'.[1] Moreover, this is the only process by which the distinctive individuality as well as the idiosyncrasies of the artist can

1 Mallaber, K. A., *A Primer of Bibliography*, p. 95.

be fully preserved through thousands of copies. This is a direct process in as much as the artist himself does the graining of the stone to suit his taste and then draws directly on stone or zinc the image in reverse or he draws it on a special kind of paper called transfer paper in which he works in the normal way round. This method is often used now-a-days for such work as posters and book jackets.

PHOTOGRAPHIC PROCESSES

Photo-Lithography

In this process photography goes hand in hand with lithographic printing process. That is to say, it is a combination of the two whence it has got its name. In this process the printing surface is a zinc or aluminium plate instead of limestone because limestone being too heavy is unsuitable. Most lithographic work to-day is done from prints obtained from photographic negatives. The surface of the metal plate is first roughened in a machine so that water will adhere to it. It is then made photo-sensitive with a coating of albumen and ammonium bichromate and allowed to dry. A photographic negative is then made of the original design and placed over the sensitised plate and exposed to strong light. As a result as light passes through the transparent parts of the negative, it hardens the corresponding portion of the sensitive plate, the remaining portion being still soluble. The plate is next rolled with a greasy ink and then washed with cold water which dissolves all the parts not affected by light. The design is now found standing in those parts which have been rendered insoluble by the action of light. Etching and gumming then follow as in the normal hand process. As regards printing it is done in the same process as in direct lithography the plate being dampened and inked at every revolution.

Pictures having continuous tones, however, require a somewhat different treatment. Such screens as are used in relief process for making half-tone blocks have to be used in the process camera in order to break up the negative into dots.

Photo-lithography is satisfactory for the reproduction of line drawings or diagrams and maps. It is also necessary for reprinting books of which type has been distributed.

ILLUSTRATION 231

Offset or, Photo-litho-offset

Offset is nothing but a variant of the ordinary lithographic method. But while Photolithography is a direct method, that is, a method in which the image is transferred direct from the plate to the paper, it is an indirect method of printing in which the ink is transferred from the plate to a rubber surface and then on to paper. It is in fact an impression of an impression. This was discovered by an American lithographer named Ira W. Rubel, sometime between 1903 and 1904. The principle behind this process is as follows :

The positive design upon the original plate is printed in reverse upon a rubber blanket from which it is then offset on to the paper. The offset press normally consists of three cylinders. First there is a cylinder round which the plate is wrapped and fastened on with clamps. This is known as Plate cylinder. Next to it there is another which is covered with rubber and this is called the rubber blanket cylinder. Next to this there is still another cylinder which carries the paper upon which the design is transferred from the rubber blanket cylinder and this goes by the name of impression cylinder. The paper in this press, therefore, passes between the rubber cylinder and the impression cylinder. There is nothing complex about the operation of printing in this process. The plate cylinder carrying the plate revolves in contact with the rubber blanket cylinder or the offset cylinder thus transferring an impression of the design on to the rubber and the offset cylinder in turn revolves against the paper upon the impression cylinder and thus transfers the ink to the paper. In recent times some machines have been invented in which paper passes between two offset cylinders and gets printed on both sides simultaneously. Modern rotary offset presses can print at an unimaginably high speed, turning out nearly 7000 impressions per hour.

The offset method of printing has various advantages. First, as there is double transference in course of printing, the image of the design on the plate need not be in reverse as in direct lithography. Secondly, as the rubber blanket is soft and smooth and gives an even pressure, even coarse papers may be used and art papers are not essential. Thirdly, as the offset cylinder has a resilient covering namely rubber, it exerts light pressure and consequently, less ink is required for printing. Lastly, plates in this process can be produced at cheaper rates than photogravure plates.

But the process is not without some defects the chief of which is that on account of double transference there is certain lack of the depth of tone. It is largely used for the production of unaltered reprints of books, prints on tin and other metals.

For the production of works requiring many colours there is still another method called *Colour Photo-lithography* which uses coloured screens as in colour half-tones. In this process a separate plate is made for each colour and printed separately in its appropriate colour on the machine.

Pantone

Though this is a planographic process, it is printed on a letterpress machine and may be used with type if the plate is mounted type-high because the image appears slightly in relief. It is, however, somewhat similar to lithography. The principle on which it is based is that while chromium surface of the plate accepts ink, mercury rejects it. The method is as follows :—

At first a photograph of the original design is taken upon some negative material. A copper plate is then coated with a very thin layer of chromium and photo-sensitised. The plate is then placed under the negative and exposed to light. When the image is obtained, the plate is placed in an etching bath of glycerine and hydrochloric acid which removes the exposed chromium but does not affect the copper. The plate is then washed lightly with water and placed further in a bath of silver nitrate to form a deposit of silver on the copper. Next, a special chalk containing mercury is rubbed over the plate. The mercury amalgamates with the silver portions and resists printing ink. It does not, however, mix up with the chromium parts of the surface. If the plate is now inked, the image in chromium accepts the ink, but the mercury amalgam parts of the surface reject it.

Collotype

Collotype is also a planographic method of illustration. It is, however, more purely photographic than any other printing process. The printing surface in this process is not metal but a photographic positive on glass. The process is in fact essentially lithographic

ILLUSTRATION   233

because some parts of the gelatine surface accept ink because they are hardened by light while others being unaffected remain soft and hence reject it. The method of making collotype plate is as follows :—

A sheet of thick plate glass is coated evenly with bichromated gelatine and dried until the gelatine is firmly set. The plate is then exposed to light under a reversed negative and the gelatine hardens according as it receives light in its different parts. The negative is then lifted and the plate is washed to remove the unexposed bichromate. The plate is then dried and developed after which it is soaked in a mixture of water and glycerine which is fully absorbed by the softest parts, other parts absorbing it in proportion to their hardness. The plate is then ready for printing. It is thus the gelatine layer that constitutes the printing surface. The method of printing in this process is almost similar to that of lithography.

Colour Collotype

Collotype is undoubtedly the finest of all reproduction methods. It is used specially when absolute fidelity of reproduction is required. That is why expensive art books, books containing reproductions of manuscripts and scientific works containing facsimiles, postage stamps and coins and costly editions of books having coloured plates are illustrated in this process. But as the plate production in this process is expensive it is hardly used in the common run of books. Its use rather lies in the reproduction of paintings and prints meant for hanging on the wall.

This is the most faithful and the most expensive of all colour reproduction processes. In this process three plates each representing one colour are made from three colour separation negatives and then printed in the same process as in other colour reproduction processes.

Of the other variations of collotype like *collography, collogravure* etc. *aquatone* is the most popular.

The Choice of an Illustration Process

The choice of an illustration process will depend not upon the merit of a particular process but upon the nature of the material and the number of copies to be produced. For example, if an ordinary kind of book is to be printed the relief or letterpress method including

even half-tone process seems to be the cheapest while for printing a long run or for reproducing a lot of colour work lithography is likely to be economical. Collotype, on the other hand, is suitable for printing a small expensive edition containing too many illustrations or coloured plates. So far as photogravure is concerned this is employed chiefly for printing a long run of periodicals or a profusely illustrated large edition of an art book. As the preparation of cylinder in this process is highly expensive this method is seldom used for ordinary reproduction.

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BINDING : THE CRAFT, MATERIALS AND METHODS

"Fast bind, fast find ;
A proverb never stale in thrifty mind."

—Shakespeare

Evolution of the Form of the Book : From 'brick' to 'book'

Books now have a puritan simplicity and dignity of appearance. But the form in which they appear to-day was not so in the early days of book production. Originally a book was no more than a brick. This need not imply any surprise because 'brick' and 'book' in that early age of history were practically synonymous, though the former is now a building material, pure and simple and the latter is the reading material in codex form. They are in fact two ends in the chain of evolution of the book as a material object. The ambassador of a foreign country, it was reported, used to go to bed every night with a brick, evidently not to use it as a pillow, for a brick could hardly be a suitable substitute for a soft and cosy thing like a pillow to a man of culture and fashion, but probably to read himself to sleep because brick was then really a book, though somewhat different from a modern book. This little, almost unbelievable piece of news need not be doubted because quite a lot of such clay books nearly 2500 years old have been discovered on the site of Nineveh and other places. Stone was yet another phase in the evolution of the shape of the book the evidence of which is present even now in India and the Middle East countries. During the Greek and Roman periods the form and shape of the book suffered yet another change and the book was then no longer a clay book or a stone book but a wax-covered wooden tablet. A large number of such wax-covered wooden books have been found out in charred condition on the sites of Pompeii and Herculaneum believed to have been destroyed by an eruption of Mount Vesuvius. The tablets, it is said, were sometimes joined together to form a diptych (two-fold) or a triptych (three-fold) by the Italian artists in the middle ages and it is in this grouping that we get an early form of

binding. Palm leaf books in ancient India, Burma and Ceylon which were no books in the modern sense of the term were kept between wooden strips at the top and bottom. But whatever that might be, none of these ingenious methods of keeping records could have developed into what we call 'book' to-day. Between 'brick' and 'book' there hangs a long tale of several centuries.

When papyrus came into use, the shape of the book became completely different. The earliest books as they were written on papyrus consisted of long rolls prepared by pasting several sheets together in order to form a continuous length. They thus looked very much like modern maps. The text was written on one side only and a wooden stick bearing the title was attached at each end so that the book could be easily folded for storage and despatch. Later on the text was written along the roll, but was divided into narrow columns, generally two or three inches wide, so that the readers could read them easily. This was the earliest form of the true book and was what the Romans called a *volumen*. Homer's Iliad was probably written on such twenty-four rolls. The meaning of the word has, however, completely changed because a modern 'volume', though the word is derived from Latin 'volumen', does not mean a roll but a book in its present shape, the word 'volume' meaning anything that does not roll up.

But rolls caused considerable inconvenience to a reader because he had to unroll the book each time he had to refer to a particular passage. Hence in course of time the shape of the book had to be changed for practical necessity. The roll was, therefore, folded concertina-wise down the space between the columns of text thus forming individual pages, each page containing one column of written matter. The blank backs of these pages were then pasted together so that wherever the book was opened only written matter could be seen. The written sheets were then pierced with holes down the left-hand side and bound either by passing strips of leather or strips of cord through these holes. A book thus formed was known as an *Oribon*. When vellum came to be used as the writing material, this kind of stabbing was found unsuitable and hence a different method of binding was adopted. The sheets of vellum cut to size were folded down the middle and fitted inside each other to form a 'gathering' or 'quire'. A gathering or quire thus made of four leaves was called a *quaternion* (Latin quaternio means a group of four), a gathering made of five leaves was called a *quinternion* and so on.

To preserve their correct order the leaves in each gathering were secured together by a single thread stitched through the fold down their middle. These gatherings were then bound together by sewing them in correct order one on the top of the other on to flexible bands placed at tight angles to the back of the book, the threads running perpendicularly up and passing through the fold in the middle of each quire or gathering. This undoubtedly provided extra strength to the book and this is the method used in book binding even today. As the early books were mostly large folios, made either of papyrus or vellum or parchment, it was necessary to protect the fragile leaves as well as to prevent the vellum or parchment from curling. Hence each such book was placed between two wooden boards which were then fastened to the book by means of bands upon which the quires had been sewn. This is the early form of the book which goes by the name of *codex*, the Latin word 'codex' meaning 'tree-trunk' or 'block of wood'. The earliest codex books were the Roman Law Digests and the Bible to which rapid reference was often sought.

In course of time rough leather was used to protect the bands across the back of the book. Still later in order to give the book a neat look this leather was pasted either partly or fully over the boards, thus resulting in the prototype of modern quarter or full leather binding. As these books were laid on their sides in those early days, the boards suffered undue wear. To prevent that possibility boards with raised knobs or bosses, generally of silver or brass, in the form of ornaments were fitted to the books. Wooden boards as book covers had been in use for long until the end of the 15th century when they were superseded by pasteboards which were made of waste paper of the printers, pasted and compressed together.

This, in brief, is the 'story of the' evolution of the shape of the book, or, in other words, the story of the progress from 'brick' to 'book'. As change is the law of nature, who can say that the present shape of the book will not change further into something more attractive and more convenient ?

Decorated Binding

Though the practice of binding books had its origin in the desire to protect them, utility in course of time gave way to consideration of refinement. Some of the Roman bindings, as we come to know

from Cicero's Letters and Martial's poems, were costly and sumptuous. Seneca, therefore, ridiculed those who prized the exterior of books more than their contents and Lucian also poked fun at the hobby. Indeed manuscripts particularly of sacred and classical literature were elaborately ornamented some specimens of which are still found in the great libraries of Europe. These decorations assumed different forms and designs—geometrical patterns with sprays of palm branches, leaves etc., all tooled in gold, brilliant series of fine stars on a ground of scarlet morocco and so on. Most of these styles were luxurious but were too laborious and too expensive to remain in use for long. Bookbindings thus ranged from ornate and bejewelled leather to gold-tooled vellum and still later to plain vellum and eventually to paper when paper came into common use. In fact invention of paper and printing brought a profound change in the binding technique. Paper being lighter than parchment and printing turning out a large number of copies, the old methods of sewing and attaching wooden cover boards were soon replaced by sewing by slighter thongs and lighter paste boards respectively. But whatever sewing was used and whatever protective cover might be employed, the cover still invited decoration and the nature and form of decoration depended to a large extent upon the artistic taste and technical skill then prevailing. Some of the Victorian bookbindings, for example, reveal not only the ingenuity and imagination that went into the making of their covers but also the true loveliness that the use of gold could impart to their designs. In her *Victorian Bookbindings* Mrs Allen has rightly observed : "The extremes of bookbinding fashions are like the legendary bed of Procrustes. All authors are fitted into them."

Binding Technique in Early Times

With the invention of printing as books began to multiply the old method of laying books on ther sides was also given up to save space, to accommodate more books on the shelves and hence books were placed together on end with their fore-edges outwards. Gradually the modern method of keeping books with their spines in front replaced the old method for the sake of convenience. But as the books were frequently handled, they used to gape at the top and bottom. To prevent it vellum or leather strips called head and tail bands were fitted at the top and bottom of the outer edge of the book by sewing them on to the covering material and by holding

them with stitches through the centres of various sections of the book. The loose ends of these strips were then drawn into the boards in order to impart added strength. Still later the visible part of these bands was decorated by means of silk thread stitched either in matching or contrasting colours.

Early Binders and their Work

In the manuscript period binding was carried out by a different set of people other than the scribes. Nevertheless the binders had to work under the supervision and instruction of the scribes because it was the scribes who accepted the order for manuscripts from the customers and had to deliver them as per customers' binding specification.

The early printers, however, were either binders themselves or at any rate had to engage special binders to work for them, who naturally used the printers' own devices on their finished books. This seems probable even in the case of such early printers like Caxton, Wynkyn de Worde, Pynson and Berthelet who seem to have had binders of their own as it is evident from the stamps or devices used in their works. Even if they were not actual binders, there is no denying the fact that they had a practice of selling books ready bound. Price for certain books was often also differently fixed—a somewhat lower price for books in sheets and some higher price for books bound. And when the price of a book was fixed by authority, the binding was generally specified as it is evident in the case of so many books like the Book of Common Prayer published in 1549 (2sh. 2d for the unbound copy and 2sh. 10d. for the copy bound in forel and 3sh. 3d. for sheep leather), the Great Bible published in 1541 (10 sh. in sheets and 12sh. bound) etc. With the increase in the number of book-sellers, binding, it seems to us, was separated from the press and the volumes were probably distributed in the form of sheets among the book-sellers who then stitched some of them and bound a few others, according to demand. If, however, the printer himself was also a book-seller, he could either undertake book-binding himself or be in close touch with a binder and while selling the copies of his book in sheets to other book-sellers, he used to bind a few copies of the book for sale in his own shop. The other book-sellers who bought a few copies of his book in sheets might also bind some copies in different style for sale in their shops. That is why copies of the same book were sometimes found in

different kinds of binding. 'Publisher's binding' appeared at a much later date.

The 'Publisher's binding' seemed to have begun at first for the smaller and cheaper books sometimes between 1660 and 1668. In order to earn profit both as publishers and binders some publishers who had binderies of their own began to bind their works before publication and sell them ready bound instead of in sheets to other book-sellers. This is evident from the Term Catalogue for 1668 as well as from the same for subsequent years in which a considerable portion of books has been described as 'bound' and in no other form. But this was so only in the case of comparatively small and cheap books.

Towards the close of the 17th century a good deal of attention was paid to bindings and hence many book-buyers preferred to have their books bound in a style of their own by their own binders. Hence the normal form of even the most important published volumes became once again the form of sheets so that the buyers might give them some permanent binding according to their taste and liking. Such was the case throughout the 18th century. But the method of issuing books in loose, folded sheets or roughly sewn within flimsy covers created considerable disadvantage. It caused delay and loss of interest to the readers who had to wait till the binding of the book was completed. To remove this inconvenience some sort of binding between grey or blue boards with or without a printed label appeared by the middle of the 18th century. At the beginning of the 19th century the grey paper boards went out of use yielding place to cloth in the case of books other than fiction. The cloth bindings and the half-cloth bindings introduced much later had, however, printed labels of paper which again soon went out of use in favour of lettering in gold directly on cloth.

Importance of the Knowledge of Binding Materials and Technique of Binding

(1) A library is a collection of books both old and new and its value probably depends more on old and rare books than on the new because while the latter are easily available, the former are not. That is why many of the old and rare books still in existence demand far more precaution for their safety than others. Indeed a good deal of knowledge of the past may be lost to the world unless these old and rare books—the memorials of the past days are properly

preserved and saved from decay. Hence it is the duty of the librarian, the custodian of books to know how to preserve the old and rare volumes. (2) The knowledge of the best materials and the methods of binding is also essential for a librarian because thereby he can instruct the binder as to how to retain old binding, how to reback broken binding and save the old covers, how to guard the damaged folds in an old book, and decide whether complete rebinding is necessary. He may thus prevent the loss of the great mass of important knowledge about old books which might otherwise be destroyed by careless rebinding. (3) Even in the case of binding of comparatively new books a librarian who knows the work well and also knows the virtues of different binding materials may give proper instruction to the binders and see, when books are returned from the bindery, if the instructions have been carried out in a careful and workman-like manner. (4) A librarian equipped with this knowledge may also easily detect if the book is in its original or mint condition and as such determine whether it deserves higher prices. (5) This knowledge may also help him to date an undated book, for the binding in old books may itself be dated or may bear some characteristics which may lead to its identification. (6) This may also enable him to detect if there is any fraud in its old look, cover and binding. (7) A librarian armed with this knowledge may also determine which materials of binding are suitable for different varieties of books and other reading materials, and which are likely to endure longer at the least cost. (8) The knowledge of materials and methods of binding enables a librarian to determine the correct condition for storage and preservation of manuscripts and old printed books in leather bindings. It helps him to preserve the books from decay, to protect them from atmospheric extremes, from heat, light, damp and drought. (9) It helps him to supervise the work of the binders, to guide and instruct them in respect of binding different reading materials viz., books, maps, charts, periodicals, newspapers, cheap books and pamphets. (10) As he knows the craft, he can easily detect the defects in a bound volume and get it rebound without incurring further expenditure. At any rate he cannot be deceived. (11) He should have also knowledge of the different methods of sewing because sewing is the essence of the whole craft and if it falls, the book falls to pieces. (12) He should know how to mend the torn leaves, how to fill the worm-holes, how to resize (i.e., dip in gelatine size) the pages

weakened by damp, how to protect the frail books which have the heaviest use, by laying over both sides of each frail leaf a strip of the finest linen mesh or Japanese tissue which does not interfere with the legibility of the text. If infinitely fragile, the leaf should be laid between sheets of glass held together at the edges. (13) A librarian having thus a fair measure of knowledge of binding may get best possible work from the binders which means less work for the binders and less cost of binding for the library. Thus a librarian by his knowledge of book-binding not only saves the life of the books under his charge but also considerably reduces the expenditure on binding thereby saving more money to be more usefully deployed for such important purposes as purchase of books, periodicals etc., opening of new service points in the library, opening of new branches and so on.

Necessity of Binding

Books in the past until the advent of printing were considered to be as precious as jewels and diamonds and hence they were jealously guarded by those who possessed them. This was because they were at once very rare and costly and their production was highly time-consuming. Indeed the preparation of a book was sometimes a life-long affair. Hence every book had to be protected and preserved from human touch as well as from decay caused by much handling. To protect the book from wear and tear it had to be given some sort of cover which at the beginning was either an envelope or a loose casing or the like. But as this would give no adequate protection when the book was being read, some sort of cover as an inseparable part of it was necessary in order to give it some constant protection. Hence the cover was attached to the sewn sheets in order to make a secure unit of the book and its cover, and this is practically the form of the book in which we find it even to-day.

A day may of course come when a library will not have to face any binding problem at all because all knowledge in that unknown future will appear not in printed pages, but in films, micro cards, mechanical recordings and other yet-to-be discovered methods of preserving wisdom. But until that day comes, libraries cannot afford to neglect books, magazines, serials, newspapers etc. which form their stock. But unfortunately most of these materials cannot withstand the wear and tear of heavy library use. When books are put into circulation, it is not at all possible to keep them in their

pristine condition. Many factors combine to damage books. There are some careless readers who have the habit of turning down the corners of leaves instead of using booksmarks. There are others who keep the books anywhere they like and do not care to see whether the books are getting soaked in rain on window sills or whether they are getting overheated on radiator tops. Improper shelving also does no less harm. The dropping of books from a height injures the sewing and sometimes even cuts the thread. These apart, shabby and tired-looking books often repel the readers and sometimes even frighten them with the prospect of contamination. On the other hand books rebound in fresh attractive covers seem to invite the readers in a way the pretty slave women of a seraglio in the Middle Ages used to attract their great masters. As regards magazines, serials and other prints which often appear in paper covers, they should also be bound in time because delay in binding them may result in heavy wear as well as in loss of some of their issues and numbers. All these make it imperative on the part of libraries to undertake binding and repair of their damaged books and other reading materials as promptly as possible.

What to Bind

In every large library quite a good deal of literary rubbish tends to accumulate. Something should undoubtedly be destoyed, but nothing should be destroyed without weighing its present and future value. Indeed there are some old manuscripts and documents, first editions of works etc., which are priceless treasures and the world will be poorer if they are destroyed. Such rare things naturally deserve to be preserved for the present generation as well as for posterity. Such books may have naturally suffered much from the effect of time as well as from wear and tear. There is little excuse for improper treatment of such materials. If the back of a rare book be broken and the leather in which it was originally bound has been eaten away, resewing should be avoided if possible and trimming never be allowed. It is better in such cases to recommend suitable slip cases, that is, boxes designed to protect volumes exposing only their 'backs'. It is of course very good from the bibliographical standpoint to retain the contemporary bindings of old and rare books because very often they give a clue to their date. Besides, such books in their original state or 'mint condition' also command higher prices in the market and indicate their

authenticity. Hence their broken bindings should be rebacked and the old covers saved.

In the case of popular books, it is however, better to rebind the original editions than to buy reprints because reprints often appear on cheaper paper with margins too narrow to permit rebinding. If the popularity of a book wanes for some reason, the available copies should be skilfully handled to meet the restricted demand with a minimum of rebinds. If however, they have lost their popularity altogether, the copies of the same may be kept in dead storage until they gain popularity again. Some books should, however, be mended rather than rebound if the damage is little and thus unnecessary expenditure avoided. But in the case of volumes having brittle and soft paper rebinding becomes impossible because the leaves often show a tendency to crack or tear away at the sewing. If such volumes are very rare and difficult to replace, they should be sent to the binder with proper instruction for their special treatment and no 'penny wise and pound foolish' policy should be followed. On the whole if books of value are to be protected, they should be rebound to give adequate protection and everything possible should be done to strengthen their leaves.

The periodicals, magazines and serials etc., which contain up-to-date and important information not easily found elsewhere also require to be preserved. The papers on which they are printed are also found to vary from newsprint to high-quality paper. Some of them are stitched with thread, but the majority are held together with staples or wires or glue. Some again have protective covers while some have no covers at all. Now, whatever be their original state, the rule of early binding holds.

Parts of a Bound Book

A bound book has different parts which go by different names. Librarians and students of library science should be familiar with these names for otherwise, they will find it difficult to follow when these terms will crop up in course of subsequent discussions. The *spine* or *back* is that portion of a book which shows itself when the book is on the shelf. It is the binding edge of the book that carries the brief title, the author's name and often some decoration too and if it is a library book, in addition to all these the spine also carries the call number. There are sometimes four or five raised *bands* or *cords* projecting from the spine in hand-bound

books, which are nothing but raised swellings set in cross-wise direction. The board which covers the title page is the *front board* and that at the end of the book is the *back board*. The edge at the top of the book is known as *head* and that at the bottom is called the *tail*. The edge opposite the spine goes by the name of *fore-edge*. At the front and back of a hand-bound book there are *endpapers* sometimes decorated or printed with an illustration or a map, one half of which is pasted down on to the inner side of the board which then becomes the cover lining and the other half which is free forms the first leaf or *flyleaf*. Besides all these, there are also head-bands in a bound book placed at the head and tail of a volume between
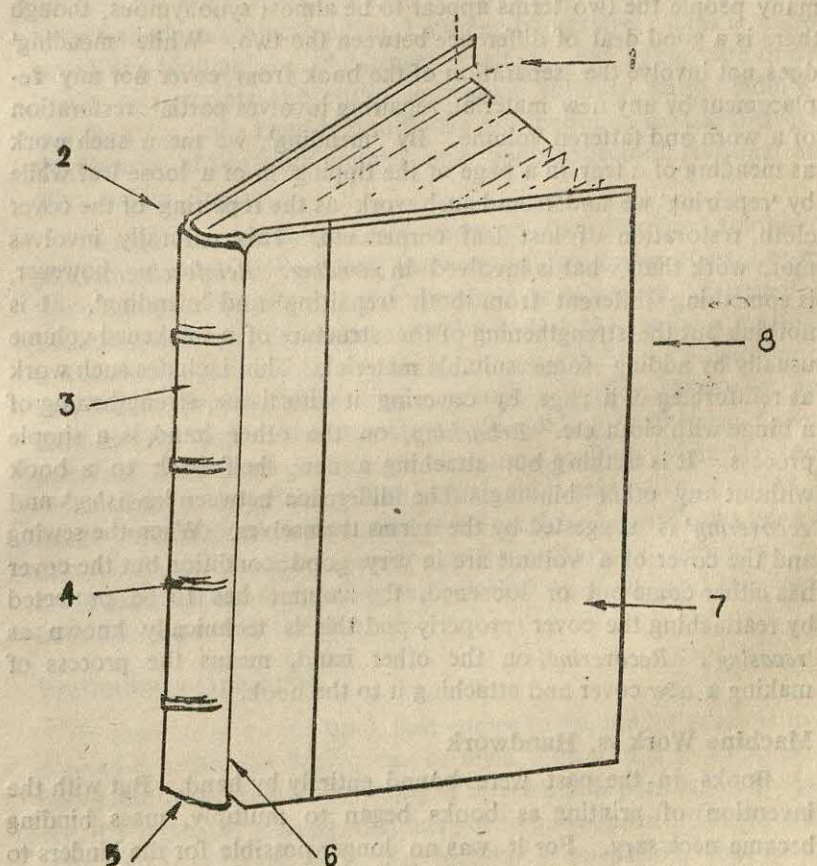
1. The square of the Board, 2. Head, 3. Spine or Back, 4. Raised Band, 5. Tail, 6. Joint, 7. Front Board or Cover, 8. Fore-edge.

the cover and the back of the folded sections. These bands are generally made of mercerized cotton or silk, usually ornamented but sometimes protective too. Formerly the band at the head of the volume was called 'headband' and that at the bottom 'tailband'. This distinction, however, is no more noticed since both are now called *headbands*.

Difference between 'Mending' and 'Repairing', 'Reinforcing' and 'Rebacking', 'Recasing' and 'Re-covering'

There is still some confusion in the mind of some Librarians as to what is exactly meant by 'mending' and 'repairing'. Indeed to many people the two terms appear to be almost synonymous, though there is a good deal of difference between the two. While 'mending' does not involve the separation of the book from cover nor any replacement by any new material, repairing involves partial restoration of a worn and tattered volume. By 'mending', we mean such work as mending of a tear in a page or the tipping in of a loose leaf while by 'repairing' we understand such work as the repairing of the cover cloth, restoration of lost leaf, corners etc. This naturally involves more work than what is involved in *mending*. *Reinforcing*, however, is something different from both 'repairing' and 'mending'. It is nothing but the strengthening of the structure of a weakened volume usually by adding some suitable material. This includes such work as reinforcing of a page by covering it with tissue, strengthening of a hinge with cloth etc. *Rebacking*, on the other hand, is a simple process. It is nothing but attaching a new shelf back to a book without any other binding. The difference between '*recasing*' and '*recovering*' is suggested by the terms themselves. When the sewing and the cover of a volume are in very good condition but the cover has either come out or loosened, the volume has to be protected by reattaching the cover properly and this is technically known as '*recasing*'. *Recovering*, on the other hand, means the process of making a new cover and attaching it to the book.

Machine Work vs. Handwork

Books in the past were bound entirely by hand. But with the invention of printing as books began to multiply, mass binding became necessary. For it was no longer possible for the binders to cope with the volume of work as quickly, efficiently and cheaply as the publishers demanded. Hence machine came into use. Though

books are bound by hand even now, it is only limited editions or single copies that are bound in this way. Some people have still some fancy for hand-bound books not only for their aesthetic appeal but also out of a common notion that hand-bound books as a rule are stronger and more durable than books bound by machine. Given good materials and proper care hand-bound book is certainly better and more durable than a machine-bound one. But machine has an advantage over hand-binding in the sense that it can maintain a uniform standard throughout an edition, but the same cannot be said of hand-binding. Moreover, machine-binding is a much swifter process than hand-binding. That is why when hundreds of copies of one and the same book released by the Press in one instalment are to be bound, machine-binding becomes imperative. This is known as 'edition-binding' or 'Publishers' casing'. But in the case of rare books manuscripts and costly individual volumes hand-binding is still the rule. Such hand-bound books may be found on the shelves in the libraries of some bibliophiles and book-collectors, National and other public libraries.

Though in machine-binding most of the work from folding to jacketing is done by machines there are still a number of part operations being carried out by hand even in large binderies. Commercial binderies, however, have been trying to link the various machines in such a way that books travel from one machine to another till they are delivered as finished products. In fact there are now machines for each of the operations like folding, gathering, sewing, pressing, trimming, gluing, rounding and backing, lining the back, case-making and jacketing with occasional breaks to be supplied by hand. Mechanisation is undoubtedly good for new editions running into thousands of copies since it ensures uniformity of binding and saves time, but for the binding and rebinding of old and rare books hand-binding is still the rule.

Preliminary Operation

In the case of an old book that comes to the binder much is to be done to it before the leaves can be sewn. First, it is to be pulled to pieces and then it is to be collated to see if it is perfect. That is to say, if a section is missing, that has got to be supplied ; if there is any fault, that is to be rectified ; if a section is misplaced, that is to be rearranged and so on. If then it is found that the backs of some

sections are damaged, they should be properly '*guarded*' by laying over them strips of strong, thin and flexible material like linen or bank-note paper so as to hold the threads. If again, the paper of a book is found to be very soft, it should be 're-sized' by passing each pair of leaves through a solution of gelatine and then hanging it up on a line to dry. If dust and dirt be found on pages, this can be removed by the careful use of soft india-rubber. If on examination of a printed book it is seen that some pages are highly damaged, they can be strengthened by pasting over them strips of chiffon which are hardly visible if properly put down.

In the case of 'edition binding' in which mending or repair work is not involved the method is a little more difficult.

(1) Sheet Work : Folding, Gathering & Sewing

There are three stages in the work of binding : (i) Sheet Work (ii) Forwarding and (iii) Finishing of which the first one includes folding, gathering and sewing. Sheet work is the generic name of the three operations : folding, gathering and sewing.

Binding operation practically begins with the folding of the sheets. In the case of some limited editions of the private presses the printed sheets are folded by the binder himself, otherwise it is done by a folding machine which folds the sheets into sections. Each sheet is folded in such a way that the pages appear in correct sequence. Each section usually consists of sixteen pages though sections consisting of thirtytwo pages are not also rare. In many old books they sometimes contain only twelve pages. The first page of each section has often at its bottom a *signature* which consists of either a single small letter or a small letter and a number following it. Now, whatever that may be, its purpose is to provide some guidance to the binder about the correct order of the pages. The letters 'j', 'v' and 'w' are not used. If there are more than twenty-three sections in a book, the alphabet is overrun and so later sections may have such double signatures $_{AA}$, $_{BB}$ etc. The size of the pages is determined primarily by the number of times the sheet of paper is folded and secondarily by the name of the size of the paper used. If there are illustrations other than those printed with the text, they are now inserted in position. Strong end-papers are then provided at the front and the back.

The folded sheets are sent to a collating machine which gathers them in correct order, and this being done, they are sewn together into a complete book. The sewing, in the words of Esdaile, is "the essence of the whole craft and if it fails, all fails, and the book falls to pieces".* Indeed the strength of the book as well as its longevity depends entirely upon how it is sewn together. There are various methods of hand-sewing. One of the commonest methods in use even now is to sew the sections on a sewing frame or Press. The vertical cords on this frame are principally meant for fastening the book to the boards. In most of the 15th century books double cords or thongs of leather were used, but now stout string is more common. Books were sewn on these cords or leather thongs by a figure-of-eight stitch. But as this method, though very strong, was a slow one, it was used only for sewing highly expensive books.

Cords

The modern 'flexible all-along' sewing on single cord is in fact "the direct descendant of the 'figure-of-eight' early sewing". In this sewing the thread passes through the fold of the first section and round the cords from head to tail, then across to the next section by means of a 'kettle stich' and up to its head. In this way it continues up and down across the entire spine of the book. This is the most perfect method for such valuable books as require to be preserved. When all sections are thus sewn, the cords are cut leaving some short projecting ends called 'slips' at each side so that they may be firmly secured to the boards. In this sewing as the thread passes round the cords, the cords look like bands or ridges on the spine or back of the book and number of bands depends upon the number of cords used.

Tapes

Sewing on tapes is yet another sound method. It is mostly used for library binding. In this method too as in cords the binder sews each section through its fold to its neighbour, twing the thread round the tapes, from head to tail as it emerges from the section and thus the thread passes from one section to another by means of

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*4 Students' Manual of Bibliography, p. 192.

kettle stitches each time going round or through the tapes across the spine of the book.
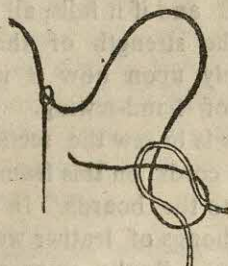
The Binder's Knot.

There is a still simpler way of sewing in which neither cord nor tape is used. It consists of a single thread going perpendicularly up and passing through the fold in the middle of each section to hold several pair of leaves in each section together.

For mass binding book-sewing machine is quite suitable because it is capable of effecting both speed and economy. Most sewing machines also make two or more groups of stitches in each section so that the sections may not get loose should a thread chance to be broken. The strength of a bound book depends on its sewing and strength of the sewing in turn depends on the quality of the thread and tapes or cords used. Hence for good work both thread and

1st stage. Dark thread is attached to the book.

2nd stage made by pulling on C. Light thread is a new piece.

tapes must be the best unbleached thread and tapes because they are sufficiently strong. As regards the number of cords or tapes that depends upon the size of the book. They are usually five on most

bound books, but there may be six or even seven on tall books and only three or four on books that are short.

There are now different practices and substitutes of full sewing in the binding of books. They are as follows :—

(1) *Sewing Two Sheets On* : This kind of sewing uses one length of thread to sew two sections together and is necessary for such books as have very thin numerous sections in order to prevent excessive swelling at the spine edge. Though this method reduces the strength of the book it has got some advantage. While the full sewing, i.e. 'one sheet on' sewing swells out uncomfortably the back of the book composed of many sections, this method makes the book small in bulk and handy. This is suitable particularly for such bulky books as are made of Bible paper or India paper.

(2) *Stabbing* : This kind of sewing is done only in the case of books of small value. In this method sewing is done not in the folds, but by piercing the pile of sections from front to back. The method is both cheap and quick, but a stabbed book opens badly and tears at the sewing if the leaves are forced open.

(3) *Sawing-in* : There are sometimes saw cuts or grooves, made with a saw in the back of a book for the cords to lie in. The purpose of sawing in is probably to avoid ridges and allow an undivided back. This seems to be useless for the same effect can be obtained by using tapes instead of cords.

(4) *Overcasting* : It is also a kind of stabbing which is unsatisfactory for small books because it takes up a good portion of the back margin. In overcasting each section is sewn through and over the binding edge. It is suitable for the first and last sections of heavy books.

(5) *Oversewing* : This is used for periodicals and books made of single pages. The pages are often sewn through the side with a sewing machine and the different sections are again sewn together by hand. Obviously this is not a very happy method of sewing since it does not enable the pages to open absolutely flat.

(6) *Stapling* : It is a kind of wire-stitching by means of wire clips or staples either from the sides or in the place of the sewing through the folds. Pamphlets and magazines are generally bound with staples. If they are stiched from the sides, it is often found that wire clips or staples tear the paper. On the other hand if they are stabbed at the fold, the metal rusts and burns holes in it.

(7) *Tipping-in or Tip-in* :   When a leaf is pasted on to a printed sheet or into a bound book, without guards, this is called tipping-in. This is generally necessary for inserting plates and sometimes also for errata slips.

(8) *French Sewing* :   There is now a tendency to omit tapes or cords in sewn books. This is known as French Sewing. French novels are usually sewn in this way. Bibles and prayer-books of smaller size are also sometimes French sewn. But as this sewing does not last long, the buyers of such books are to get them bound soon.

(9) *"Perfect" Library Binding or Rubber Back* :   In this method the folds are all cut off and the edges of the leaves stand in rubber solution. The life of such binding is naturally short since rubber solution cannot hold the leaves together beyond a few months. Rubber back was used only in the case of very cheap books in the past. Later on a sort of flexible glue was used probably to ensure longer life. To ensure still longer life and greater strength a sort of plastic adhesive instead of rubber solution is now being used for binding cheap books like Telephone directory, Publishers' catalogue, Pamphlet etc.

(10) *Spiral-backs* : This method of binding is suitable for books which are required to open absolutely flat, especially maps, charts and machine manuals. Both metal and Plastic spirals are now used, but they are good neither from aesthetic standpoint nor from the point of view of durability or longevity.

(ii) Forwarding : The binder divides the processes of his craft into two halves : 'Forwarding' and 'Finishing'. A book goes through various operations between the sewing and the finishing. These operations are known as 'forwarding'. The principal operations involved in forwarding in a hand-bound book are pressing, gluing-up, rounding, backing, attaching the boards, trimming, covering and filling-in.

We have already seen that in normal sewing as the thread passes through the centre of each section, the back of the book gets thicker because of the added thickness of thread. This additional thickness sometimes sinks into the paper, but if the paper be hard and the thread thick, swelling on the back is quite considerable.

We also know how sections are sewn together in a sewing-frame. When all the sections are sewn, the cords on to which the sections have been sewn are cut leaving ends nearly two inches projecting

from either side of the book. These projected ends called slips are later on laced into the boards in order to attach the book to the
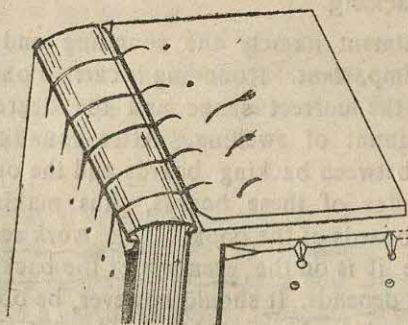
Lacing in the boards.
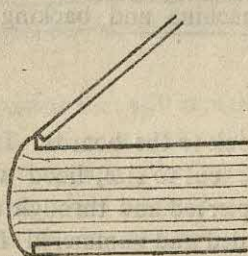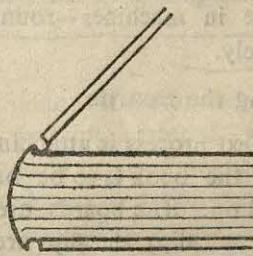
Tight joint.   French groove.

boards. If tapes are used, they are also inserted between split boards. Allowance should, however, be made for a french joint if the covering material is very thick.

Pressing and Gluing-up

After the book is properly sewn it has to be compressed and consolidated either by pressing it in a machine known as Nipping Press which is capable of exerting nearly ten tons of weight or by rolling it between heavy steel rollers. In the absence of both this can also be done by beating it with a big hammer. The purpose of pressing is to make the book well-shaped. The next process is gluing. The back or spine of the book is then given a coating of glue which is applied in such a way that it penetrates between the sections and

helps to hold them together. The glue is allowed to dry until it is elastic.

Rounding and Backing

The next treatment namely the rounding and backing of the volume is no less important. Rounding is carried out with a hammer until it assumes the correct shape and the degree of roundness depends on the amount of swelling. After rounding, the book is placed in a press between backing boards and the outer sections are tapped over the edge of these boards, thus making a groove to receive the cover boards of the book. This work requires both skill and care because it is on the evenness of the backing that the final shape of the book depends. It should however, be borne in mind that proper rounding and backing enable the book to be opened more easily and with less strain on its sewing and binding. In machine binding, however, both rounding and backing of the volumes are done in machines—rounding machine and backing machine respectively.

Attaching the Boards

The next process is attaching the book to the boards. The boards in which the book is to be bound are cut to size, lined with paper and laced on. The boards are then pierced and through the holes, (two for each slip) the slips are threaded and hammered flat on the board and glued in position. Boards used in handbinding should as a rule be of good quality mill board.

Trimming

The next process is to cut the edges of the book. The edges are generally trimmed with a plough as accurately as possible by leaving suitable margin. The square boards at all times act as guides to the cutting. In hand-bound books only the head is normally trimmed, but for special purposes all the three edges are sometimes trimmed. Trimming in the latter case is done first at the head, then at the tail and finally at the fore edge. For cheaper bindings the edges are cut in the guillotine before the book is rounded and backed. Undue trimming may however, result in *bled* pages and margins which being very narrow not only impart a bad look to the book but also leave no room for the reader's thumb to lie. Care must therefore, be taken to guard against it. Books printed on

hand-made paper are generally left untrimmed. In case a hollow back is required, this can be done by lining up the back. On the other hand if a tight back is required, the covering material may be glued directly to the back of the section.

The spine of the book which has already become swollen or at least unsmooth because of the presence of sewing thread and tapes or cords now requires to be given a lining which is done by gluing layers of kraft paper or jaconet upon it.

Gilding

Gilding the edges, if desired, should be carried out soon after trimming. Gilding is done either by brushing or spraying the desired coloured ink and then by waxing and burnishing it or by scraping the edges in a small finishing press and then by applying a liquid bole with a sponge and lastly by laying over the dry surface a sheet of gold leaf. The main purpose of gilding is undoubtedly to produce decorative effect, but if properly done this may also make the edges impenetrable to dust.

Covering

The treatment that still remains to be done is to cover the volume with suitable covering material. The covering material, whether leather or cloth or any other variety is pasted or glued to the boards and turned in. If it is leather, a rectangle is cut large enough to cover the volume in one piece and to leave sufficient margin on all sides for turning in. If necessary, the leather is also pared thin on all turn-in edges, otherwise the binding will be clumsy and the boards are likely to gape out. The leather at this stage has to be soaked for sometime so that when pasted it can be drawn smoothly over the boards and the spine. As regards the spine the leather is moulded round the cords and turned between them as smoothly and neatly as possible because it is the cords that form an integral part of any decorated binding. The leather is then stretched smoothly over the boards and the spine. The leather is then stretched smoothly over the boards and the parts of the leather that are turned in over the edges are pasted down and trimmed round evenly all round.

Lastly comes the question of adding *end payers*. An *end paper* is nothing but a sheet of strong paper which is normally double the size of a leaf of the book. One half of this end paper is now pasted down on the inner surface of the board so that it may equal the thickness of the leather turned in and the other half is left free so

that it becomes virtually the first leaf of the book. An end paper
has double function : it not only hides from the reader the mechanics
of binding but also prepares him for the things lying just beyond it.

(iii) Finishing

Finishing in binding terminology implies the finishing touches
that are given to the book after a secure unit of the book and the
cover is obtained and the this includes all the beautification processes
like lettering, decoration and polishing. Though neither of these
processes, that is, lettering, decoration or polishing is necessary for
the bare protection of a book, readers, librarians and binders still
find some delight in adding such decoration to the cover. The
motive that prompts them to do so is probably the same as urges
men and women in general to put on costly, fine and elegant dress
and ornaments. Normally the volume is lettered with the title, the
author's name and the call number by gold-tooling on the spine.
Gold-tooling is by far the most suitable means of decorating and
lettering books bound in leather. Books may be lettered by hand-
stamps or brass stamps set in wooden handles. Each of these tools,
whether hand-stamp or brass stamp, has the reverse of a letter
engraved on the end.)
The binder cannot, however, proceed with his work all at once
without preparing the leather. He has got to prepare the leather
first with white of egg and when the preparation is still dry to the
touch, he lays over it the gold leaf and applies to it a little grease so
that it may adhere to it for sometime. The tools, heated over a gas
or electric stove, are then pressed through the gold, thus producing
on the leather the impressios in gold of the letter engraved on the
end of the tools and these impresssions are more or less permanent.
Books can also be lettered with hand letters, but that requires both
skill in stamping and taste in alignment of the characters. Moreover,
it takes much time. It is not only letters but also ornamental features
that can be impressed in this way. Although gold-tooling is the
principal means of decorating modern books there has been of late
considerable revival of another method namely 'blind-tooling'. Blind-
tooling, as its name suggests, means tooling without gold or silver.
That is to say, in this method impressions of the letters or patterns
on the tools are made on leather without gold or silver by pressing
only the heated tool on the leather. The heat slightly darkens the
surface of the leather and produces very pleasant results. In the

15th century almost all leather-bound books were decorated in this process. But tooling, whether gold or blind, requires great accuracy and skill, a keen eye and a steady hand. On modern book cloths a variety of colours are used for lettering on the spine, but they have not the permanence of gold. Now, whatever be the method, each part of the design, letter by letter, flower by flower or the like thus goes on until the whole is completed. There may be different other methods of decorating the binding such as inlaying of different colours on leather, gilding and colouring of the edges etc. Lastly comes polishing or varnishing which, when done, gives to the book a finished look and an attractive appearance and this completes the process of finishing.

Covering Materials

There are now different kinds of materials used for covering books, but of all these materials leather appears to be very nearly the ideal and most popular. It is not only pliable but also takes tooling and gold admirably. Besides being tough and durable, it is good to look at and delightful to handle. That is why until recent times it was considered to be the most suitable material for the purpose of book-binding. But with the appearance of cloth in the field leather as a covering material has partly receded into the background yielding place to good cloth for a great majority of ordinary books. As leather is more expensive than cloth, it is now reserved for some special classes of books. Indeed as good cloth lasts as long as ordinary leather and as it is available in wide variety of substance it is utterly wasteful to use leather for small or thin ordinary lending books. Nevertheless, for the largest and most heavily used books as well as for special collections that have to stand heavy library wear leather is still the most desirable material for book cover. But if leather is chosen, it should be first ascertained that the leather or skin to be used has been properly tanned in sumac or mimosa or similar vegetable stuff and that it is free from sulphuric acid which is largely responsible for the decay of leather bindings. For it has been found by experiment that vegetable-tanned leather lasts longer than that treated with injurious acid, particularly sulphuric acid in the tanning process. It should also be ascertained that the skin has been dyed with fast colour so that it may stand both light and moisture.

In the past sometimes such fantastic hides as shagreen i.e. ass or horse skin, snake-skin, fish skin, skin of crocodiles and even human-

skin were used as book covers. In England in the Middle Ages skins of deer were also largley used. At present only the following kinds of leather are used for binding purposes.

Sheep-skin : It is rather soft on the surface and has little strength. It is, therefore, good enough for binding books for which only a short life is required. At any rate it should not be used for permanent preservation of books. The modern manufacturers sometimes split the sheep-skin and turn its grain surface into a pleasant, soft leather known as *skiver* which is so artificially grained that it looks very much like *morocco*, crocodile or other skins and the imitation is so complete that it is difficult to detect whether this is *morocco* or sheep. The skins of the mountain breeds of sheep are, however, fairly durable. Improperly tanned and dyed sheep-skin sometime contains too high an acid content being affected by sulphur dioxide in the air and as such, it, shows signs of decay. The wise binders, therefore, purchase from reputed tanners all their requirements able to withstand the PIRA test, laid down by the Printing Industry Research Association of England.

Goat-skin : It is perhaps the most suitable of all skins for library use. This is what is popularly known as morocco which has derived its name from Morocco, the country wherefrom it reached Europe in the sixteenth or the seventeenth century. Similar skin coming from the Levant was known as Levant morocco. The finest morocco is *Crushed levant* and no leather except vellum shows up gold tooling so well. It is highly expensive and hence it is reserved only for valuable books. There is still another goat skin produced in Africa and this goes by the name of *Niger morocco*. It is really a first-rate binding material which is particularly suitable for binding large and heavy books because it is both thick and strong. The *Niger morocco* which is tanned and dyed by the Nigerian natives themselves is often found to be fast in colour and durable. There are still other varieties like *Turkish goat* and *Oasis goat* of which the former has a clearly marked grain of its own and the latter has a hard but smooth surface similar to that of seal-skin. *Oasis goat* comes from the Cape and the area around it and is practically a *morocco*. Goat-skin, as a rule, has much firmer surface and texture than sheepskin, but there are some sheepskins which, when tanned, can hardly be distinguished from goat-skin.

Pig-skin : It is an excellent leather, very thick, strong and durable. But as it is very stiff, it should have a french joint for

library binding and should not be unduly pared down by the binders. White, alum-dressed pigskin is really a beautiful leather and is perhaps the most durable material for covering books. This is used specially for binding manuscripts and books of special value. Pig should not be dyed because in its native colour it takes on a pleasant 'cheesy' tone and has a smooth hard surface. This skin was used extensively by the early binders and the books bound in it that have come down to us are still in excellent condition. 'Pig skin' has bristle-holes appearing in triads and it is these that distinguish it from other varieties.

Calf-skin : It has been very widely used for centuries for binding books, but it has no longer the same popularity as it had in the past. Young calf has a perfectly smooth surface, but litttle strength. It is now used primarily for school prizes. There is some calf-skin of inferior quality known as 'tree-calf' which is used for binding ordinary books. The 'tree-calf' is made by pouring acid over the skin which then assumes the look of a tree. The cow-hide which is used to-day for binding American and other law reports is generally worthless. There is still another worthless cow-hide known as 'russia' which is nothing but a soft, scented, tanned and dyed leather that attained great popularity in England in the early part of the 19th century. Though not as durable as goatskin this is still preferred for its smooth surface which makes fine tooling possible.

Vellum : Vellum is a good binding material. It is prepared from the membrane of calf-skin dressed with alum and then polished. It has a beautiful, creamy-white surface which takes gold-tooling so well that no other background can do. It is also very easy to clean. Vellum is often affected by both damp and heat. Damp causes it to 'cockle' while extreme heat makes it brittle. Moreover, vellum being costly cannot be used for the general run of library books.

Parchment : Parchment is also a similar product, but not so strong as vellum. As it is made from split sheep-skin, it is thinner as well as weaker than vellum and hence it does not make a good covering material. It is, however, recognizable by the grain seldom found in vellum.

Seal-skin : It is the hide of the Greenland seal and not of the fur-bearing kind and is very strong all throughout. Its oil is very rich and consequently it is both durable and flexible. But it is too costly to be used for ordinary library binding. Besides these common leather materials there are some other skins, notably those

of snakes, lizards, crocodiles, kangarooes which also go at times into the binding of private books, though for strict library use they are quite unsuitable and unsatisfactory.

Substitutes of Leather and their Special Virtues

Leather of good quality is undoubtedly the best material for covering books. But as it is too expensive for the covers of a great majority of books, a large variety of substitutes have now come into common use and they are quite suitable to modern needs. Of these the group of textile seems to be the best. They include cotton and linen cloths and cotton and linen buckrams. Though they have not the toughness and flexibility of leather, it is certain that good fabric is better than bad leather. In certain measure they are also relatively cheap, pleasant to the eye and suitable for short term use. That is why there is now a tendency among the librarians to choose for library binding the better woven materials in lieu of costly leather and this is certainly good for at least such books as are likely to remain on the shelves for long periods with only occasional use. But for books subject to hard wear good leather is certainly the only suitable covering material.

Buckram : The best of these woven materials is buckram which is made from linen or cotton fibre, closely woven and suitably filled, coated and calendered. As a binding material buckram is indeed a class by itself. Besides being very strong it has a smooth surface and pleasant look. But as it is thick and fairly stiff, it is suitable for covering only large and heavily used books, such as large reference books, big volumes of periodicals etc. Moreover, as it is relatively expensive, it is not much used for Publisher's work.

Cotton cloth known as Calico is sometimes used for the front and back of the book but not for its spine.

Art canvas : This is another variety of cotton cloth but mixed with hemp. As it is neither coated nor calendered its texture is very rough ; nevertheless it is a fairly strong covering material.

Imperial Library Cloth : There is a cloth called Imperial library cloth that lasts long and makes very good sides for half-bound books.

Art linen : Though art linen is not a linen, it is still a strong and fairly satisfactory binding material.

Art-vellum and Book-binding cloth : They are nothing but weak muslins filled in with dressing. They are used only on the ordinary publisher's case. If one rubs a piece of such material between one's

fingers, one can easily see how weak its basic weaving material is. Book-binding cloth is given a sort of dressing in order to ensure it a smooth surface so that it may not pick up dirt and the glue cannot penetrate. Moreover, it should have some basic strength if it is to endure long.

White-backs : They are unwashable book cloths which being loosely woven lack inherent strength. They are dyed after their manufacture is complete and as such their colour fades in no time. They are cheaper than other varieties of cloth and as such they are preferred by the Binding trade for a great majority of ordinary books.

Imitation cloth : As its name implies this is no cloth but a material made of cellulose fibre which is so filled, calendered and grained that it looks very much like a woven cloth. Though comparatively cheap, it is a highly durable material and hence quite a good number of edition bindings are now enclosed in imitation cloth. This is known to the trade by various names such as *Imtex*, *Linson* etc.

Leather cloth : It is in fact proxylin-treated book cloth and unlike starch-filled book cloth it is said to be waterproof and snudge-proof.

Water-proof materials : Various waterproof materials are also used sometimes for covering books. But waterproof shows a tendency to crack after a few years. Hence it seems to be suitable for covering only such books as have a short life of hard wear as well as for books used in the open air.

Compressed paper has no inconsiderable strength and can be decorated in a variety of ways. It is now possible to have a variety of colours which are quite fast.

Marble Paper : There is still another variety of paper named Marble paper which is used primarily for decorating the edges of books and specially the edges of books of account.

Plastics, whether pure or plastic impregnated cloth, have an advantage over other covering materials since they can be wiped clean with a piece of damp cloth to remove dust and dirt. But their use is still restricted, being confined only to the binding of pamphlets, commercial catalogues etc.

Library Binding

It is a special kind of binding known as extra or luxurious binding, which imparts great strength and much durability to the book so that it may withstand severe library use.

The sewing in this case is generally done by hand, but if there

are enough books to be bound at one time, sewing can also be done by machinery. Normally cords are used and laced through strong black board, but if necessary, even tapes may be used and laid with glue between split mill-boards one of which is thick and the other thin. As regards covering leather even imperfectly dyed skin may be used because it does no harm. Lastly, even thicker leather can be used with the help of *French joint* with corresponding gain in strength. A *French joint* is nothing but a free swinging joint produced by setting the cover board a little distance away from the raised edge or flange. It is also known as open joint. The *French joint* leaves a space of about 1/8th of an inch between the edge of the cover-board and the back which enables the leather to bend down when the book is opened.

Publisher's Casing : It is same as case Binding or case work. It is different from binding altogether because the case in this method is made separately and then lightly attached by glue to the book. At first the sheets are sewn on to a strip of some linen mesh or mull and short tapes up the back and the case is then attached to the mull and tapes by means of paste or glue. As such, one can easily see both the strip of linen mesh and the tapes inside any cased book because they are not inserted between split boards as they are done in binding but merely covered over by the end paper. A cased book cannot, therefore, withstand heavy library use because the connection between the case and the book is rather loose, being dependent on the strength of the tapes and the end-paper as well as on the life of the glue which holds them together. As regards materials and methods straw board and cheap cloth often go into its making and the whole process is now carried out by machinery.

Publisher's casing has some serious disadvantages. For example, when a cased book has to be bound, a second set of sewing piercings have to be made in the folds as in re-binding. Secondly, casing adds much to the price. It is really an expensive luxury.

Edition binding : The kind of book-binding that is furnished to the book trade goes by the name of Edition binding. That is to say, it is quantity binding in uniform style for a large number of copies of single titles.

Publisher's Binding : It is the binding of a book as it is issued by its publishers. It is almost identical with edition binding and commonly uses ordinary cloth.

Reinforced Binding : It is a term loosely used by publishers for edition bindings which profess to be strong enough to withstand heavy library use. Sometimes it means pre-library binding, i.e., binding prior to or at the time of original sale.

Reinforced Library Binding : Normally it means a secondary binding in pre-library-bound style. Sometimes, it is however, used to refer to a pre-bound book in which the publisher's original cover is retained.

Perfect Library Binding : It is a misleading term which in fact means just opposite of what it literally suggests. In this process as there is no sewing, all the folds are cut off and the edges of the leaves are then fixed together by some adhesive. The advantage of this binding is that the book opens quite flat. But its disadvantage is rather serious and it is that the leaves fall out as soon as the adhesive loses its strength. Indeed this binding lasts as long as the adhesive lasts.

Full Binding : A book is said to be fully bound when it is bound completely (both back and sides) with any one material. Truly speaking this term should apply only to leather binding.

Half Binding : It is a style of binding having a leather back and leather corners, and cloth or paper sides.

A book is, therefore, said to be half bound when it has the sides of cloth and the corners and face or back of leather, vellum or some other material different from the sides. This makes an ideally cheap and durable binding, showing a face of leather, sometimes ornamental, when placed upon the shelf. Even when leather is justified, it is wasteful to bind books in full leather. Indeed half binding is quite adequate even for larger books.

Quarter Binding : It is the binding of a book in cloth-covered boards, with leather backs in which the back material extends slightly on to the sides. It may have also paper-covered sides, with cloth or leather backs. Quarter binding is quite adequate for smaller books, for limited and private press editions.

Three-Quarter Binding : This is similar to half binding except that the leather extends further on the sides, roughly to three-quarters of half the width of the sides. In this binding corners are proportionately large.

Tight back and hollow back : When the covering material is stretched over the boards and is firmly pasted down the spine of the book, the book is said to have tight back. In tight binding the

strain is, therefore, distributed over the whole spine. Tight back, however, affords little flexibility in opening and hence it is not a satisfactory kind of binding. Its firm back, however, provides a good ground for tooling. In the hollow back or loose back binding, on the other hand, as the covering material is not glued to the back, it does not touch the spine. It is called 'hollow back' because it uses a piece of stiff paper to create a false back in the form of a hollow tube to which the covering material is glued. Hence if one opens the book, one can easily see down between the back of the book and the back of the board.

Though it retains a good deal of flexibility, it is weaker than the other since the strain is thrown here only on the joints and not over the whole spine and hence unless well made the hollow back may soon come out along the covering material itself.

Flexible back : This is at once very durable and flexible. In this kind of binding a very insignificant amount of lining is used and the covering material which is leather and no other variety is directly stuck on to the book. It is generally suitable for heavy reference books, bulky books consisting of a large number of pages and the like. But flexible backs are unsuitable for spine tooling. Moreover, heavy books having flexible backs lose their shape by and by on account of constant handling.

Specification for Library Binding

One of the chief functions of every librarian is to preserve books and other reading materials because he cannot afford to lose or destroy old valuable records that constitute the wealth and the principal object of attraction of his library to scholars and learners. In fact the librarian of every library has to preserve books from decay, whether these books are of permanent or temporary interest to the readers. A librarian who wants to preserve books must naturally be able to give specification for binding books of different nature and importance to his binders and then to judge if the binder has faithfully followed his instruction in this regard or not. That is to say, he must have sufficient knowledge of the materials and methods of binding so that he may tell the binder clearly what he wants and detect the faults when the books are sent bound. And preservation, as it is known to all, centres largely round preservation of binding or arranging suitable rebinding as and when it is required. The binding is in fact, the armoury of the book which naturally

receives the first attack of the book's enemies, and unless the binding can be impaired or damaged, no injury can be done to the book proper.

In the past the librarians had either to rely entirely on the binders or had to know in details the virtues of different binding materials and the craft of binding, because they had no definite standards of binding to guide them. But since the turn of this century the problem has been easier. A Committee, for example, was first appointed in England in 1901 by the Society of Arts to investigate the causes that led to the premature decay of book binding. The Committee again appointed a Sub-Committee to ascertain the causes of deterioration as well as to suggest suitable methods for its prevention. The said sub-committee suggested some specifications for binding heavy or valuable books.

Specification I

The sub-committee recommended that all sheets broken at the back should be properly guarded and that if there are single leaves or plates they should be guarded round the adjoining sections. So far as end-papers are concerned they should not only be of very good quality but should also be made with stout linen joint and sewn on as a section and by no means be pasted on or overcast. The thread for sewing should be unbleached linen and the bands to be used should be of stout hempen cord and at least five in number. Boards which are the foundation of binding should be strong, hard black millboard and should be pierced so that the slips may be laced through the holes without unduly fraying them out. The edges of the book should then be trimmed according as the librarian instructs. If it is necessary to line up the back, it should certainly be done with leather or linen. As regards covering material it should be principally leather for binding books of value. Leather should always be attached to the back of the book and no hollow back should be tolerated. Moreover, leather should neither be unduly pared down nor stretched more than necessary. Lastly, the quality of leather should be prized more than attractiveness. At any rate it should be at least free from mineral acids which invariably interferes with its life and durability.

Specification II

The said sub-committee also laid down some specifications for ordinary library binding. The Committee thought that even in the

case of ordinary library binding all sheets broken at the back should be properly guarded and that single leaves or plates, if there were any, should be guarded round the adjoining sections and should never be pasted. Secondly, end-papers should certainly be strong and should be sewn on and never pasted. Thirdly, sewing should be done with unbleached linen thread and unbleached linen tapes which should not be less than four in number. Books might, however, be glued and backed in the ordinary way. Fourthly, boards which are an indispensable part of binding need not be millboards for ordinary binding. They might be 'split boards' or straw boards with thick black-board liner. Fifthly, attaching slips should be pasted on to waste-end-paper which should be cut off about two inches from the back and inserted with the slips in the centre of the split board. Sixthly, if headbands were necessary, they should be worked on round cord with frequent tie-down so that the book might bear the strain of heavy use. Seventhly, the covering material, principally leather, should not be unduly pared down nor should it be stretched too much because there are no raised bands on its back. The use of french joint might, however, facilitate the use of thicker leather. Lastly, the books of permanent interest should, as a rule, be bound in full or half-leather while books of lesser interest should be bound cheaply in cloth.

But even though specifications are there, it is at times impossible to keep strictly to them, particularly in respect of binding of certain valuable old books and some cheaper classes of works. There are some rare and valuable old books which require to be bound as carefully and perfectly as possible regardless of expense and time while there are some cheaper classes of works that should be bound as quickly and as cheaply as possible. In fact in the case of binding of cheaper books it is sometimes uneconomical both in respect of time and expense to mend the backs of torn sections and to guard plates instead of overcasting the former and pasting the latter.

Minimum Specification

Today the problem of getting books rebound and magazines and others bound in substantial material and with careful workmanship has become a fairly simple affair. To improve the standard of craftsmanship further the Library Association and the Library Binding Institute of America set up a joint committee in 1934 in order to formulate the minimum specifications for Class A Library

Binding. The Joint Committee accordingly formulated the minimum specifications which are now being followed by all classes of libraries in that country. In fact these minimum specifications are so widely known and popular that no further instruction need be sent to the binder except that books should be bound according to the American Library Association Minimum Specifications for Class A Library Binding. By Minimum specification every binder and every librarian in America now understand that a book should be bound in full buckram of assorted colours with lettering as per underlined words on the title page and call number as it appears on the title page. The author's name should appear just below the title and in comparatively large type. Lastly, illustrated and decorated covers should be used as far as possible, but the edges should be always left blank.

How to Judge a Binding

The librarian or the person in charge of binding should give specific instruction to the binder with regard to the binding of every book and periodical he sends for binding and then as these materials are returned from the bindery he should minutely examine the volumes to see if his instruction has been faithfully carried out or not. It is not, however, always very easy on his part to detect all faults. The more obvious faults may not escape his sight, but unless he has thorough knowledge of the craft, keen eyes and an alert mind he is sure to fail to detect the less obvious faults that often lie hidden in interior workmanship. Hence in order that a librarian may obtain good work from the binder he must be able to evaluate the binder's work by judging the binding properly. He should by no means allow any lowering of the standard of work simply because the charges are lower than the average.

While examining a binding the first task of a librarian is to see if the book has a fine general appearance and a tidy look, for unless the book has a pleasing shape and an attractive look, it is certain that the workmanship it has received has been faulty or at least slovenly. In a finely-bound book the cover should fit at the back and should be neither too loose nor too tight, nor should it be too large or too small for it. The thickness of the cover-boards should also be proportionate to the thickness of the book. As regards covering leather it should be fully free from unevenness caused by faulty paring. So far as lettering is concerned it should be clearly legible

and well centred and if it is to last long, the gold or foil should also be impressed as deeply and uniformly as possible.

The second step in examining a book is to see if the book opens reasonably well or not at any page required and remains open with the page lying flat. If it does, it is well and good, but if it does not, it is certain that there is something wrong with the sewing or the backing. Flexibility, on the whole, depends on the avoidance of a tight back and the use of end-papers and covering material in the right direction.

The third step in examining a book is to open it and see whether one can see down between the back of the binding and the back of the book. If one can see, it is a hollow back which means that the binding is weak because the strain in it has been thrown only over the joints and not over the whole spine as it is done in tight back binding.

The fourth step in examining a binding is to see if the book is cased or bound. If the book is bound, there should certainly be some evidence that the slips have been laced properly into the boards. As regards cased books it is often seen that the case and the book part company too soon while in the case of a properly bound book the connection between the book and its cover is sometimes eternal. At any rate the boards should not gape out when the book is closed. A well bound book has really the look of a solid entity and this depends on good pressing, gluing, rounding and backing.

The fifth step is to examine the stitches as they appear along inner margins. If the stitches are at a uniform distance and appear to have been done in a neat manner, the work may be considered to have been properly and satisfactorily done.

The sixth requisite of a really well bound book, unless it is very small, is that it should be capable of standing on its head or tail or foredge without falling over and this is possible only when square boards of correct thickness are used and the covering material is evenly drawn over the edges.

Lastly, the end-papers should also engage the librarian's attention. He should see whether the end-papers are of the same colour and weight as the pages of the book and whether they consist of three functional parts viz., a pasted-down or outward end-leaf forming the cover lining, two free fly-leaves and reinforcing fabrics because such end-papers contribute much to the strength of the binding.

It is, however, needless to say that such careful examination should be given to each and every book received from the bindery and not to just one or two volumes in a lot.

A hand-bond book is generally considered to be more durable than a machine-bound one. But there is no good reason why a machine-bound book cannot be made as lasting as a hand-bound book. The myth that hand binding is better than machine binding stems from the fact that the binding materials used in the former are generally of much superior quality and the labour spent is also of greater duration. Given better quality materials a machine can bind as good and durable a book as an expert human hand can. In fact superiority lies in both good materials and efficient manufacture. But as hand binding is more expensive and time-consuming edition bindings and library bindings are normally done by machines and hand binding is limited to the binding of special editions, old and rare books, books for presentation, single copies and the like.)

Paper-back

It is a cheap book in paper covers. This may be a pamphlet or a small book which is not bound, but covered with a stiff paper which is usually pasted on to the book or sewn through. Sometimes it is called paper-bound. It is also a common term to denote novels of the 19th century.

Paper-back is chiefly a product of the 19th century. With the foundation of democracy in the 19th century and its consequent emphasis on education literacy increased in almost every part of the world. The growth of democracy, moreover, encouraged widespread public discussion on political questions and thus helped the cause of popular education. This naturally raised in course of time the demand for public libraries, made them a product of the cities and brought them within the reach of all. Consequently the need of bringing out books in cheaper editions had also been very keenly felt. It was in America where the system of Public Libraries had already struck deep roots that the cheap paper-bound books were brought out for the first time. The Boston Society began publishing paper-backs as early as 1831 for the diffusion of knowledge further. But the more vigorous paper-back publishing programme flourished in the U.S. from 1890 to 1900. The popularity of paper-backs was so great in the United States that by 1885 nearly one-third of the titles published in the U.S. were paper bound books.

The popularity of paper-backs grew still further. There were certain great works of scholarship in the various subject fields such as science, religion, literature and art which had long been out of print. As the demand for these books was very great, they soon appeared in reprint in paper-backs. Indeed since 1950s a new departure has been discernible in the United States as also in many other countries in the method of publishing books. Most of the important books of the past which had been out of print for long were brought out in paper-covers and at highly reduced prices. Each edition of such a popular book sometimes ranged from twenty to fifty thousand copies. The market for these books was found among college and university students and professors. So successful were these new editions that many publishers began reprinting their serious works in paper-cover editions of their own. Some even issued new learned titles in this form for the new student market.

Unsewn Binding or Technique of making Paper-bound Books

The immense expansion of the paper-back market is an important factor in the bookshop and in the binding industry. The printing of paper-bound books is more or less conventional, but new kinds of machines have been introduced in the bindery to deal with them. Although certain percentage of paper-backs is still produced on lines similar to those of case-bound books with individual infolding of sheets into sections and stitching or gluing of the pages, the specialist binders do all these with combintion units that eliminate separate operations altogether. These machines gather the sections in correct order, cut off the backs to form single sheets, glue them, apply the paper-cover with adhesive and deliver the copies for trimming at speed exceeding 3000 per hour. Packing or wrapping for mailing is also done by automatic machine.

Most paper-backs are now bound by a method known as Perfect or Unsewn binding. Folding and collating are done in the same way as in the case of other books, but the sections are not sewn. The books are rather fed into a machine that cuts off the folds on the spine, leaving a rough edge so that leaves can be held together on it by means of glue. The spine is then also bent in such a way that glue penetrates slightly between the leaves. The machine also applies a strip of mull or linen or paper to the spine. Lastly, the cover is applied with adhesive and the book is trimmed in a guillotine. Unsewn books are bound in the same way as writing-pads are bound,

though more strongly.   Obviously unsewn binding or paper back is considerably cheaper than sewn binding.

How to rebind Paper-backs

When volumes are put into circulation, many factors combine to damage their bright new appearance.   Careless readers turn down the corners of the leaves, tear leaves in their haste to read what comes on the next page and sometimes leave books and magazines to become overheated or get rain-soaked.   Even babies do their part in the destruction of such books by tearing the leaves or shredding their covers.   When such books in paper-covers are worn out, they are sent to the library binders for rebinding.   On the otherhand magazines, serials and other unbound materials are sent to the library binders to be bound in their first permanent binding.   One of the most serious binding problems is with regard to books, magazines, serials and other prints which appear in paper covers.   A definite binding practice should be established for them.   Delay in binding may result in heavy wear, frequently in loss of some of them.   Moreover, unbound files are hard to shelve.

Whether paperbacks soiled and worn through frequent circulation, should be rebound or not depends upon circumstances.   If the reprint may be had at a lower cost than at that of rebinding, reprint should always be preferred.   Moreover, if the paper be very cheap and the margins are too narrow to permit rebinding, it is always desirable to buy new copies.   If, however, the reprint is on cheaper paper, the book should be bound by a competent binder because a book bound by a competent binder will last as long as the text is in a readable condition.

In general, volumes having brittle, soft and bulky or 'feather weight' paper are not worth rebinding.   The leaves will have a tendency to break off or tear away from the sewing along the inner margins after a comparatively short time.   In such volumes the binder should carefully adjust the tension or the sewing to the estimated strength of the paper.   Successful oversewing requires an inner margin of at least half an inch.   Of course books with narrow inner margins may be hand-sewn but the expense thereof is too high.

If a volume is to be rebound, the best and the most economical method is to send it to the bindery before it becomes hopelessly worn-out.   If the sewing has given way in one or more places, or if leaves are loose, the volume should be rebound.

If the mending of a tear in a page or the tipping in of a loose leaf is necessary, the book should be sent for mending. The book should, however, be sent for repairing if the repairing of the cloth cover or the restoring of the lost leaf corners is necessary. The question of reinforcing arises only when the strengthening of a hinge with cloth or the reinforcing of a page by it with tissue in necessary.

Early rebinding of volumes of permanent value is always more economical in the long run than much mending.

Reading List

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Chapter IX

THE STRUCTURE OF THE PRINTED BOOK AND ITS VARIOUS PARTS

Oh, dainty volume, new and neat!
The paper doth outshine the snow,
The Print is blacker than the crow,
The Title-page, with crimson bright,
The Vellum cover smooth and white,
All sorts of readers do invite.

—Andrew Lang

Need of Different Parts in a Printed Book

Books are not abstract things like knowledge or thought-content embodied in them. They are concrete objects having various parts, though to average readers and learners a book means simply the body of the text commencing with the introduction or the first chapter and ending with the last. But in a modern printed book there are other matters as well such as the title page, the dedication page, the preface, the table of contents, the index and so on. Though all these definitely fall outside the limits of the true text, they are not absolutely unnecessary. It is now matter of common knowledge that neither the books of the manuscript period nor the early printed books of the incunabula class contained these auxiliary matters. But as they were later additions to books, they were evidently intended to improve upon the earlier books and unless they were considered to be absolutely essential, probably they would have never evolved. In fact these auxiliaries helped the readers in various ways. For example, some of them saved the reader's time by pointing out what he should read and wherefrom he should start reading, some served him as aids to his eye, some helped the author to make his own estimate of the value of his contribution and some again enabled the reader to verify a fact or check his memory. All these indicate that these subsequent additions are no useless matter. They rather serve as vital aid to the study of the text proper. Indeed but for these auxiliary matter the study of a book would have taken much time and labour, caused much discomfort to the eye and created monotony and dullness. That is why they now form parts of a printed book.

Importance of the Study of the Book's Structure

Modern librarians and bibliographers should study the anatomy of every printed book, that is, its various parts as closely as possible because this will yield to them a good deal of technical knowledge necessary for their work. In fact this will help them in designing and ordering any printed material which their libraries may decide to bring out either regularly or at times. This will also enable them to distinguish a well-designed book from a poorly-designed one. That is to say, this will help them to appreciate the relative value of the different printed books as well as their practical value and aesthetic suitability. This will also help them to realise that a series of mechanical processes have taken place between the manuscript and its final appearance in print. In other words, they will be able to understand properly how the author's manuscript has been transformed into a printed and bound book, why different copies of the same edition sometimes read differently, whether a certain copy belongs to the first edition or not, whether the author revised the text in any subsequent edition and so on. Lastly, the examination of the structure of a book also assists us in evaluating the book. All these make it imperative on the part of bibliographers and librarians to study the structure of the book so minutely and in all its aspects.

Different Parts of a Printed Book

Every printed book falls into three distinct parts : (A) Preliminaries, (B) The body of the book and (C) Subsidiaries.

(A) The preliminaries or 'prelims' are generally prefixed to the text while the subsidiaries or end-matter are printed at the end of the book. The preliminaries and the subsidiaries together i.e. all matters outside the limits of the text go by the generic name of 'oddments'. Among the oddments again, it is the preliminary pages that evolved first. It is now a matter of universal knowledge that the early printed books of the 15th century known as incunabula (from the Latin word 'incunabulum' meaning cradle) closely imitated the handwritten books of the manuscript period and did not possess preliminary pages. They were later additions to the book made not earlier than 1470. The preliminaries, better known as 'prelims' or 'Prels' consist sometimes of all and sometimes of some of the following elements :

(1)　The bastard title or half-title or fauvre-title.

(2) The announcement i.e. a statement of other works by the same author or in the same series.

(3) The fontispiece

(4) The title-page

(5) Biblio or Bibliographical note

(6) The imprimatur or licence for publication

(7) The dedication

(8) The foreword or introduction by some one other than the author

(9) The preface or introduction by the author

(10) Acknowledgements

(11) The table of contents

(12) The list of illustrations

(13) The list of abbreviations found in the text

(14) Errata or Corrigenda

This catalogue, it is needless to point out, is no standard one, for an author may devise a few more items for inclusion in his 'prels' or he may even omit some if he considers them unnecessary. At any rate the genius of an author cannot be made to conform to any academically standardised limitation. He is free to add a page or two in his preliminaries for inserting a quotation or some other inspiring matter which, he thinks, will put the readers in a right state of mind to pursue what comes next.

There is not also anything sacred about the order in which the the various items of the 'Prelims' or 'prels' are arranged. Yet the order is neither arbitrary nor illogical. It is rather an order which is hallowed by tradition and is therefore, followed by all authors and publishers to their advantage out of habit rather than out of deliberate choice.

Preliminaries are normally printed last and on a separate sheet or sheets but if there is any new prefatory matter, it is printed first and not last of all. If printed last, it should be paged separately in roman figures but if it is printed along with the text, it should be paged regularly in Arabic numerals without any break. Now, whatever that may be, Pagination under all circumstances should begin from the first recto of the book whether it is blank or not.

(1) The Bastard title or Half-title

This precedes the title-page and carries on the first recto the short title of the book. This is also the page from which pagination should reckon. If the book however, forms part of a series, the series title also appears here except in German books in which the series title and the book title usually face each other. The epithet 'bastard' seems to be too strong to apply to a thing which is neither illegitimate nor spurious nor artificial. Hence many people prefer to call it 'half-title'. But the term 'half-title' again seems to be inexact in its denomination, for there may be several half-titles in a book though we know that there can be only one bastard title in it.

The bastard title bears in fact only the short title of the book and nothing more. The style of setting it is also very simple and unostentatious. Its function appears to be so insignificant that at times it appears to be almost useless. But the question arises if the bastard title is really so useless, how it could manage to become an indispensable part of the book. Really speaking, the bastard title has also its importance. It not only keeps the title-page clean but also leads to the book's identification which a blank first leaf cannot do. That it is intended to protect the title-page from the soilure of dust and handling is evident from the peculiar name given to it by the Germans—Schmutz-title which means 'dirt title'.

Generally the bastard title-page contains on its recto the short title of the book set in a smallish size of type in its upper part though occasionally we also see the book's short title placed in its middle. But whether placed in the upper part or in the middle the book's short title on the bastard title page should never be set in such a pretentious style as to compete with the book's title-page. It is more or less a neglected page and should, therefore, appear discreet in keeping with its modesty. Its function is that of a messenger or forerunner announcing the approach of his master.

The terms *recto* and *verso* will frequently crop up in course of our discussion and hence they require to be properly defined. The *recto* is nothing but the right-hand page of a double opening while the *verso* is the reverse of it and hence it is the left-hand page. The recto of the half-title page or of the title-page has great significance because

imporant matters relating to the published work are generally set down here or at least begin thereon.

(2) The Announcement

On the verso of the bastard title-page we sometimes find a list of other works by the same author or of other books in the same series and this is what is called announcement. The word 'announcement' does not apply to all books because there are books in which the back of the half title-page is left wholly blank and as such, has nothing to announce. Announcement is in fact some sort of advertisement of the works of an eminent author or prolific writer printed on the verso of the half title-page which would have otherwise remained blank. Better use the room for a purpose than leave it blank—should, therefore, be the motive behind its lay-out. At any rate typographically or otherwise this should by no means compete with the title-page opposite to it because the title-page is the main announcement of the book.

(3) The Frontispiece

This is an illustration or a photo relating to the theme of the book or its title. Frontispiece is not found in all books but when it appears, it invariably precedes the title-page and faces its recto. It is generally printed separately on some special paper and tipped in. In case of a biography the frontispiece is often a portrait of the great man whose life it elaborates or celebrates.

(4) The Title-page

However unimportant the title-page might have appeared four or five hundred years ago its importance in a modern book is paramount. The modern title-page serves the purpose of both information and guidance that is essential. It is a means of identification of the book as well as of the distinction of the author's name and the reputation of the publisher. Hence whatever might have been the other reasons for the rise of the full-fledged title-page in the past one reason was almost certain that it arose out of commercial necessity. Hence the title-page to-day carries on its *recto* a clear and concise statement of the following : By *recto* and *verso* are meant the page on the right and the page on the left respectively as a book is opened in front.

(a)   The full title of the book together with any sub-title or alternative title or parallel title explaining the intention or scope of the work.

(b)   The author's name together with his academic degrees, academic status and authorship of similar works.

(c)   The names of collaborators such as translators, editors, illustrators and so on, if any, with appropriate words indicating their role.

(d)   The edition number if it is other than the first.

(e)   The Publisher's device, if any, generally printed above the imprint.

(f)   The *imprint* which occupies the lower part of the title-page includes the place of publication, the name of the publisher, the date of publication and if the publisher be little known, also his address.

The *imprint* is of great value to both the reading public and the librarians. For if the book has been brought out by a publisher who is reputed to have specialised in such kinds of publication, it is likely to be a standard and authoritative work. The publisher's name and address, as they appear here, also inform them both as to where it is available for purchase and the date of publication which is the last item of the imprint indicates to them if the book is up-to-date or a laggard.

The *verso* of the title-page contains the following information no less important than those given on the recto:

(a)   The statement of editions and impressions normally appears on the verso of the title-page though in certain books it appears on the recto.

(b)   This is also the place where the statement of the number of copies printed in each edition or inpression and also in different forms such as large paper, de luxe edition etc. appears. The statement of the number of copies printed in different forms is found more in French books than in English.

(5) Biblio or Bibliographical note

Biblio is no abbreviation for bibliography and hence it should not be confused with the latter because while bibliography which is an altogether different thing is placed either at the end of the book or

at the end of every chapter, *biblio* appears on the verso of the title-page. *Biblio* means bibliographical details which include the printer's imprint, the country of origin, the date of publication and the name of owner of copyright generally printed as © Derek Williamson 1967, © Oxford University Press 1963 and so on. In the books published in the United States the date of copyright which in that country is a legal obligation to the state appears as a matter of rule on the verso of the title-page. *Copyright*, as it is known to all now, is the exclusive right of an author or a publisher to publish, reproduce and sell a literary or an artistic work. The period of copyright however, varies from country to country.

As regards the printer's imprint, i.e., the name of the printer, place and date of printing all books must, by law, bear it, though the law does not dictate where it should go. Normally, however, this appears on the verso of the title-page though some printers especially of pamphlets and periodicals having no normal title-page prefer to put it at the end of the last printed page or on any blank that is available.

If the *biblio* or bibliographical note is a full one it includes additional information in greater details relating to the publication of the book. For example, if the illustrations in the book have been printed by a different printer and by a different process, if the blocks and plates have been made by different block-makers and plate-makers and if the copies have been bound properly, it will be unfair not to recognise the part each of them played in bringing out the book as a finished product and hence a full bibliographical note now-a-days includes not only the name of the printer of the text but also the names of additional printers, block-makers and plate-makers and binders together with details, papers used and types employed.

Now, whatever be the method of setting the paragraph for bibliographical note this should at least be neat, orderly and pleasant.

As regards the style of the setting of title-page, the title being more important here is generally composed in types of greater weight and size and inserted in the upper part of the title-page. The author's name which is next in importance is, therefore, composed in a type of slightly smaller weight and size and inserted below the title but

above the centre. The imprint is given in a still subordinated type-face at the lower part of the page.

(6) The Imprimatur or Licence for Publication

This included the name of the licenser and the date of licence which was not necessarily the date of the imprint. There was no definite place for the imprimatur to appear. It appeared sometimes on the verso of the title-page, sometimes on a separate page following the title-page and sometimes on the verso of the bastard title. The licence for publication was granted in certain countries sometimes by the governments and sometimes by the ecclesiastical authorities and sometimes by both. The imprimatur is now rarely found except in the works of Catholic priests.

(7) The Dedication

This is the place where the author expresses his personal admiration or affection for one under whose inspiration or for whose sake, it seems, he has written the book. The dedication is, therefore, given the honour of a right-hand page in which the name of the dedicatee generally appears in pleasing capitals at about the level of the chapter drop or at optical centre of the page. The dedication page generally follows the title-page.

In the past particularly in the 17th & 18th centuries authors were more fulsome and elaborate in their dedication. They used to pay long compliment to their patrons either to express their gratitude or to pay off a monetary obligation. But as the same motive works no longer, the dedication has now become comparatively simple and terse and more or less a formality.

In certain English books of the 16th and 17th centuries the dedication is the only place where the author's name appears.

(8) The Foreword

This is often written by an authority on the subject or an eminent person who has graciously condescended to boost the book. It is sometimes called the Introduction to which there can certainly be no reasonable objection. The only caution that is necessary is that this should by no means be confused with the Introduction by the author himself which normally forms the Introductory chapter as well as the first chapter of the book. Though the words preface, foreword and

introduction practically mean the same, it is perhaps the fear of repetition that calls for a difference and the differentiation is made in a modern printed book by using the three terms for labelling three different kinds of matter, preface being written by the author himself explaining the aim and purpose of the book and how it is intended to be used, the foreword being a note of commendation to the reader by a distinguished person and the introduction forming an integral part of the book namely the Introductory chapter or first chapter.

But whether it is a foreword or a preface or an introduction the purpose of each seems to be the same namely to summarise the purpose of the book.

The *foreword* is placed before the list of contents by custom and tradition. But when it is a long one comprising a large number of Pages and thereby causing much annoyance and inconvenience to the readers it is better to violate the custom and transpose the two, i.e., to place the foreword after the Table of contents.

There was also a time when the foreword was printed in some distinctive manner probably out of deference for the notability who wrote the foreword. But to-day, the foreword is no longer given that kind of distinction. As it is now considered to be a part of the book, it is printed in the same type as the text of the book.

(9) The Preface or Introduction by the Author

This is the place where the author introduces the book to the readers and explains to them the purpose for which he has written it and the arrangement, symbols and abbreviations he has used in it. In a word, it describes the general subject matter and plan of the book. Hence its older name was "To the Reader". This is also the place where the author acknowledges various help he has received from various persons in course of his writing the book, in the preparation of the manuscript and its final appearance in print. As it is written last, it contains the author's after-thought. It serves as the author's brief guide to the book as well as a useful aid to reviewers. If there is, however, an editor's preface, it should be printed immediately before the author's preface.

(10) Acknowledgements

Acknowledgement of generous help and judicious suggestion that the author might have received from various persons, institutions

and bodies in the compilation of his work is a matter of courtesy and obligation which no decent man can deny and hence it either forms a part of the preface or is printed separately as a separate section after the preface or just before it or at the end of the volume wherever it is deemed suitable, prominent and convenient.

(11) The Table of Contents

This should be analytical, that is to say, this should clearly indicate the contents of the chapters as well as chapter headings. If the Table of Contents be properly drawn up a brief index can serve the purpose of both reference and verification and hence the index need not be elaborate. A well drawn and elaborate list of contents apart from helping the reader to trace some particular piece of information also provides him with a brief outline of the contents of the book and gives him some idea of the author's point of view or the subjective interpretation of the facts he has narrated in it.

Generally the contents page is arranged with the chapter number on the left, then the chapter title, and lastly at the other end of the line, the page number. Normally the chapter numbers and the Page numbers in the Table of Contents should follow the text in the use of roman or arabic numerals.

In French books the list of contents is often found at the end.

(12) The List of Illustrations

This comes closely after the contents. This should clearly indicate not only the total number of plates but also their position in the book. This should also distinguish between the plates, illustrations and maps in the text each of which should have a separate sequence of numbers and should include the frontispiece.

Typographically the List of Illustrations and the Table of Contents are closely related to each other and hence they should be set in the same manner and the lay-out of the two should also be as far as possible similar, and yet attractive and clear.

(13) List of Abbreviations

Shortened or abridged forms of words, i.e. parts of words written or printed for the whole are sometimes listed at the beginning of a book for the convenience of the readers so that they may follow them with ease. Lists of Abbreviations are generally found in dictionaries,

encyclopaedias and such other compendious volumes in which abbreviations are largely used.

(14) Errata or Corrigenda

It is nothing but a list of errors detected after the book is printed but before it is published. It appears generally in the form of a small slip of Paper which is pasted in at the end of the book. But as such a small, pasted in slip does not last long, it is desirable that the errata or corrigenda should be printed on a blank half page in the preliminaries so that it may not be lost.

(B) **The Body of the book or the Text.** The Text proper lying between the 'Prelims' or 'prels' and 'the Subsidiaries' or 'End-matter' is the principal part of the book and it is with this that the readers are primarily concerned. The other parts of the book namely the oddments (Preliminaries & end-matter) being merely auxiliaries can at best offer some aid or guidance to the readers in pursuing the text. They are in fact means to an end and not an end in themselves. The text sometimes begins with a chapter entitled the Introduction and it starts on a recto nearly a third or more down the page. The text is sometimes headed by a short title known as the 'drop-down'. Normally two different kinds of headlines are found to occur in every book. The one at the top of the left hand page i.e., at the top of the verso of each leaf is the short title of the book which is nothing but the 'drop-down' and the other at the top of the righthand-page i.e., of the recto of each leaf is the Chapter headline or the page headline. There is in fact no sense in repeating the running headline i.e., the short title of the book on each verso except for decoration. To repeat it just to remind the reader of the book's title at every opening is surely to minimise his intelligence. That is why in most of the books to-day we find Chapter heading on the verso and the page heading i.e., the main topic of the page on the recto. The page headines, as we know, may differ from page to page in accordance with the change of the contents. The page headine is useful since it serves as a guide to the reader and helps him skip over many pages and leads him directly to the actual page or pages in which he gets what he wants. This naturally requires that the author himself must provide the page headlines and must not depend for the same on the printers.

Normally the text is printed first and the oddments afterwards and hence the first page of the section containing the text carries the first signature mark at its foot. If the book is a reprint, the case is however, different.

(C) **Subsidiaries or End-matter**. The oddments at the end of the book are known as Subsidiaries or End-matter. The purpose of the Subsidiaries is to save the time of the reader when he comes to it a second time or on a later occasion. They also help him to verify a statement, to pick out a specific information, to check his memory and so on. They generally include the following :

    Notes
    Appendices and supplements
    Glossary
    Bibliography
    Index
    Colophon or Printer's Imprint
    Finis
    Fly-leaves
    Plates and maps
    End-papers
    Book-jacket

Now, though each of these items has its own importance and contributes to the book's usefulness, what is surprising is that all books do not always contain them nor do the parts always follow the order in which they have been listed above. Nevertheless, as each of these physical parts of a book has its own significance, importance and usefulness, a detailed discussion of each is called for. Let us, therefore, begin with Notes first.

Notes : They may be of three kinds—(i) brief references to other works (ii) descriptive notes (iii) explanatory notes or commentaries. In the case of the former they should be relegated to the foot. Though brief, these notes should however, contain information sufficient enough to enable the readers to identify the work and the relevant passage. That is to say, they must at least refer to the chapter and the page number so that the reader's time may not be wasted. Even if the notes are descriptive or explanatory of the text but not voluminous, they should be printed either at the

foot or at the side of the page. But in case these notes are long and bulky, they may be amassed either at the end of the book or at the end of the relevant chapters, whichever is convenient, though there is no denying the fact that this method causes constant interruption in the reader's train of thought. The best method in such cases, should therefore, be to print the text in the upper half of the page with the notes in the lower half just below the lines of the text. Now, whatever be the nature of the notes—descriptive or commentarial, they should be as far as possible accommodated in the page of text either at its foot or at its side for the benefit of the readers.

The notes should be printed as a rule in type smaller than the text type, but not in such smallish type as may cause discomfort to the reader's eyes. If they are explanatory or commentarial, they may be printed, if possible, all throughout in the text type and not in the smaller type.

Appendices : They constitute a subsidiary part of the book, more or less in the form of a supplement. They are used for such materials as tables, long extracts from relevant documents etc. which sometimes cover different sections of the book. As their inclusion in the main text may interfere with the reader's train of thought, they are included in the end-matter of the oddments.

Glossary : It is a special list of words, abstruse and obsolete, scientific and technical, together with their definitions or meanings. There are certain books in which a good deal of such terms occur and since majority of readers are not familiar with them the glossary is indispensable; otherwise they will feel handicapped in following the thought-content. A glossary is, therefore, an indispensable part of only those books in which such terms largely occur.

Bibliography : There is now a common practice of appending bibliographies to books. They may be either exhaustive or select lists of books which the author has either consulted while writing the book or has recommended for further study on the subject. At any rate they clearly indicate if the author is up-to-date and thorough in his approach or not. They may, however, appear either at the end of the book or at the end of the relevant chapters of the book.

As regards compilation, however boring this work may appear, this should always be done by the author himself and should never

be left to the printer or to any other person. As regards the order of arrangement of each item in this reading list it is better to give first the author's name, then the title of the book, then the name of the publisher and the year of Publication, then the vol. no. and the Chapter no. and lastly the Page no. In the case of a periodical article the reasonable order should be to give the name of the writer first, then the title of the article and then the name of the periodical and to these should be added one after another the number and the date of issue and the page number. In the absence of any other arrangement all the items in the list should be arranged alphabetically under the authors.

Index : "There is no greater literary sin than the omission of an index", said E. B. Osborn in his essay on Indexing. That is why in most of the standard works of to-day, the index has become the most compulsory element among end-matter. Its importance is so great that Dr. S. R. Ranganathan has rightly said that 'To get into a book without an index is like getting into a forest without a trained guide.' When the index is such a vital adjunct of the book it is necessary that it should be provided by the author himself and not by the printer nor by a hack. Usually the index appears at the end of the book and begins on a recto page. Its main purpose is to reveal the scope of the book by listing respective topics discussed in it as well as by showing the number of pages occupied by each of them.

Indexes may be of various kinds, viz., Classified Index, Multi-partite Index, Block Index, and Relative Index of which the first three are out of place in the index to a book because none but a select class of readers can use them with case. The Relative Index, is in fact the best kind of index which may be used by all to their advantage because here under the main entry word several other entries which have more than one reference are arranged. The reasonable arrangement in a relative index should be to give the main entries in bold type and the sub headings in lower case. Relative index is also preferred because it is better to have a single index than to have sectionalised indexes. Lastly, indexes should be analytical. That is to say, they should refer not only to the page and paragraph numbers but should also give some idea of the nature of the passage referred to.

Certain multi-volumed books have only a cumulative index at the end of the last volume with no index to each volume while others

have an index at the end of each volume as well as a cumulative index to the whole set, forming a separate volume by itself. One of the well-known examples of the latter group is the Cambridge Modern History.

As regards the printing of an index analytical or otherwise, type used in it should neither be too large to look disproportionate nor too small to be easily readable.

Colophon or Printer's Imprint : There is in fact no difference between Printer's Imprint and Colophon except that while the Printer's imprint appears at the bottom of the verso of the title-page of a modern book, the colophon appeared at the end of the manuscripts and early printed books. The information provided by both are practically the same—the scribe's or the printer's name and address, place and date and sometimes also the device of the scribe or the printer, pictorial or emblematic such as a torch for Harper, an owl for Holt, a ship for Viking and so on.

Colophon from the Greek 'Kolophon' meaning the finishing touch or 'summit' was an inscription on the last page of a book used before the title-page was introduced and in many cases even afterwards. In MSS the colophon contained the scribe's name and date and place while in early printed books it used to bear such information as the place and year of publication, the printer's name and other details necessary for identification. Some colophons are more explicit than others and generally speaking, the older the book the more detailed is the colophon. All early printed books did not bear the colophon) and the printed book to bear the colophon first was the well-known *Psalter* printed in 1457 by the well-known German printers, Fust and Schoeffer. Since then the colophon became more or less common in all printed books until it was superseded by the Imprint with the introduction of the title-pages by about 1600 in the form in which we see them to-day. The colophon in still found in liberal use in its full form in French books published by the Private presses. If the printer's imprint appears at the end of a modern book, it is frequently inconspicuous being printed in very small type though there is no reason why it should be so. But whether at the end of the book or at the foot of the verso of the title-page it has got to be provided by law in every book in almost every country of the world to-day.

The colophon is of great interest to the bibliographers rather than to the readers and as such the latter very often completely overlook it.

Finis : In a multi-volumed book this is printed at the end of the last volume. Other volumes should, however, end with such expressions as 'End of Volume I', 'End of Volume II' etc.

Fly-leaves : They are blank leaves at the beginning or at the end of a volume between the lining paper and the first or last section and hence they are the first and the last leaves in a book. If numerous, they are quite unnecessary both at the beginning and at the end of a book. Instead of too many fly-leaves there should be only stout end-papers at the front as well as at the back.

Plates and Maps : Such illustrations as cannot be printed with the text should be printed separately either on double leaves or on single leaves wide enough to be folded and sewn. Such illustrations include plates and maps which should be numbered with figures and letters corresponding to those in the List of Illustrations printed in the Preliminary pages. Each of these Plates and maps should also bear the book's short title so that they can be inserted or replaced in proper places if they ever come out or are missing. The tissue-papers which are inserted between the Pages and the plates so that the two may not stick together need not bear the book's title, shortened or full.

Maps or diagrams may be inserted in their exact places amidst text-pages or they may be gathered at the end. They may also be issued loose and kept folded in a pocket so that the readers may consult them while going through the text or they may be set out in such a way that when unfolded they should remain outside the fore-edge of the book.

End-Papers : End-papers do not form any essential or important part of the book and hence they bear no printed matter. An end-paper is just a sheet of paper double the size of a leaf of the book one half of which is pasted on the inner side of the board while the other half is left free to form the first leaf or the fly-leaf. End-papers should be of good tough opaque paper of mild colour. Their main purpose is to conceal the mechanism of binding as well as to add a little strength to the covers. They may not contribute to the

mechanical perfection of a book, but like a surface veneer they do certainly hide what is mostly crude and gross.

End-papers may sometimes carry decorative maps and diagrams, useful graphs and rules, genealogical tables and the like and there can be no reasonable objection to them if their purpose is merely decorative. But if they are considered to be a necessary adjunct to the text, they should as a matter of rule be also reprinted elsewhere in the book. After all the main purpose of end-papers, as I have already said, is mostly aesthetic and not relative to the text of the book. Moreover, in most library books date labels and corner pockets are generally pasted down on end-papers while in private collections inscriptions are penned on them by the owners, thus hiding whatever is printed or drawn thereon. Moreover, end-papers cannot normally be preserved when a book is rebound.

Book-Jacket : As its name implies it is nothing but an outer garment of the book and hence anything important which is not contained in the book should not be printed on it. It is just a paper wrapper frequently coloured and artistically designed which is meant partly for protecting the casing from dust and soilure so long as it is in the book-seller's hand or the reader's and partly for eulogizing the author. Its addition to the book needlessly adds to the book's cost and its value to Public and other libraries is questionable since it is difficult to preserve.

In the long line of subsidiaries or end-matter the book-jacket was the last to arrive and true to its green age and inexperience and as the youngest member of the family it naturally assumed a somewhat attractive or showy look to catch the people's fancy. Before it, however, made its appearance the usual method of issuing books was to bind them in some paper-covers or paper-boards, evidently weak, so that the would-be buyers could easily change them and give to their purchase some durable bindings and bindings of their own choice. It was the industrial revolution bringing in its wake the use of metal and steam in the printing industry that led to increased book production consequent upon increased demand and as a result, temporary bindings began to disappear and the books began to be issued in some permanent binding as finished products because most of the purchasers were, on economical grounds, reluctant to rebind them. As the number of book-buyers increased still further and as the books

began to be frequently handled by the prospective buyers in book-shops the publishers had to devise, out of necessity, the book-jacket to protect the books from soiling as well as to keep them in mint condition. The original impulse behind the book-jacket thus seems to be the same as what leads the school children even now to wrap their books with some brown or other papers. And when the book-jacket was used, it was but natural that the book's title, the author's name and the publisher's imprint would soon appear on it and still later also some advertising matter eulogizing either the author or some interesting books of similar nature by him or others brought out by the same publisher and intended for sale. Indeed the book-jacket has now turned to be more a medium of advertisement than a protective cover.

A study of the anatomy of the book-jacket reveals that it has five surfaces of which the front side bears the book's title and the author's name usually printed larger than the publisher's imprint normally occupying its lower part and the back side carries a list of books of the same class by the same author or by others but brought out by the same publisher. The spine of the jacket, if it is broad and fits well with the spine of the book, serves the purpose of good advertisement when it stands out with other spines on the shelf since it carries the same information as are found on the frontside. The front flap of the book-jacket is, by custom, reserved for the blurb i.e., the publisher's description of the contents of the book to which the jacket is attached while the rear or back flap is generally used for accommodating quotations from reviews or special information about the author.

The design of the jacket, whether typographical or artistic, should be tasteful and pleasant and in harmony with the content and not usually gaudy, for as we know 'the apparel oft proclaims the man' as well as a thing and as regards the quality of paper of the book-jacket it should be always strong and capable of enduring long, for a thin jacket is almost useless and often tears away even before the book leaves the shop.

The History and Evolution of the Title-page

A title-page, as we know, is a separate page which sets forth in a conspicuous manner the title of the book which follows it and not any part of the text itself. It is now considered so indispensable in a book that its absence in one seems distressing. Indeed a book

without the title-page to-day appears to be more or less like a headless trunk. And yet the title-page has not always been indispensable ; as a regular feature it appeared rather too late in the history of book production. The papyrus roll of antiquity which was the first true form of the book had also no title-page. It could, however, be identified only by the label or the tag attached outside to the free end of either of the sticks fastened to the roll round which it was kept rolled for preservation and despatch. The ancient Romans used to call it 'titulus' whence our word 'title' has come. Even the manuscripts and the quite early printed books had seldom any title-page) and they often began straightway with the text on page 1, with the customary 'Incipit' or 'Here beginneth' and ended with the 'Explicit' or 'Here is unfolded'. Miniature at the beginning or initial letter illustrative of the text was then the only guide to the subject matter of the book. But that does not mean the idea of (the title-page was absolutely unknown during the manuscript period. There were some books, though their number was very insignificant, which had some sort of title-page. We may cite for instance a manuscript entitled *Four Gospels in Latin,* now in the British Museum which has a definite title-page.) The book dates from 800 A.D. But what is surprising about the title-page is that it appears on the verso of the twelfth leaf of the book which was definitely at variance with later practice. From 800 A.D. to nearly 1400 or so there was a long gap when no title-page was found. Elaborately designed and bordered title-pages were found in the manuscripts produced at Florence around 1460. They generally appeared on the back of the first leaf rather than at the front. But these manuscript title-pages were meant more for embellishment than for identifying the books or explaining their contents. The usefulness and the advantages of the title-page were not probably realised until 1463 when Fust and Schoeffer, the noted German printers for the first time introduced the printed title-pages to the *Bull* of Pope Pious II at Mainz and this contained only title and author. The second printer to do so was also a German named Arnold ther Hœrnan who introduced a title-page to a Sermon (*Sermo ad Populum*) printed at Cologne in 1470. It is a lengthy title, far more descriptive than the so-called 'label' title-pages that came into use afterwards since it gave not only the title and author but also the place and date of publication and the name of the publisher. Even after this

for many years the title-page did not come into popular use. Even Caxton, the first English printer followed the old practice. He used to print the titles of his books in any part of the text that suited his convenience, sometimes at the beginning of the prologue, sometimes at the end and sometimes even in the table of contents. It was since 1480 that the 'label' title-page began to appear and this consisted of a few words printed at the top of a blank leaf in the preliminaries. The 'label' title was in fact a prototype of the modern 'half-title' or 'bastard title'. Full title-pages did not appear until the fag end of the 15th century or the beginning of the 16th. So far as the title-pages are concerned generally such countries as Germany and Italy adopted them earlier than England.

(The first printed book in England to boast of a title-page) seems to be an edition of the *Treatise of the Pestilence* by Canutus. Though this is not dated, it is supposed to have been printed before 1490 by William Machlinia. Another book—*Chastising of God's Children* printed by Wynkyn de Worde soon after Caxton's death also bore a descriptive title. It was in fact at the hands of this famous printer Wynkyn de Worde that the title-page got fully developed and became a regular feature of the book. (By the beginning of the 16th century almost every book used to contain a full-fledged title-page bearing the book's title, the name of its author and the name of the printer or book-seller. There was, however, some notable exception to this practice even in later times some of which at times did not bear even the authors' names. For example, even the immensely popular *Spanish Tragedy* which held the stage for nearly a generation and which was printed between 1592 and 1633 did not bear the name of its author, Kyd. But in most of the books the title-pages had by that time taken over the function of the colophon. That is to say, such details as the place where the book was printed or published, its date, the printer's or the publisher's device which were so long supplied by the colophon at an inconspicuous place at the end of the book began to appear at the foot of the title-page, maybe partly for the purpose of identification and partly for that of decoration and advertisement. Some books of the early 16th century again had title-pages printed in gothic types while the text in them was often printed in roman. Later on for the sake of artistic design and decoration title-pages began to appear in new light and consequently gothic types of larger size and of

ornamented face were used for a part of the title and the roman types of smaller size were used for the rest. The gothic-faced title page or the gothic-faced line of the title was cut in wood in such a way that it soon turned to be more a delightful decoration than a positive source of identification. Indeed lettering was sometimes so intricately exploited for the sake of decorative art that the title itself became sometimes unreadable. Still later decorative borders on the title-page built of type-flowers began to appear and this enjoyed for sometime considerable popularity.

During the last quarter of the 16th century as also at the beginning of the 17th there appeared still another form of the title-pages which, it seems from their appearance and purport, were not definitely chosen by their authors. They were more or less in the form of advertisement the purpose of which was undoubtedly to attract the buyers. Such high-sounding epithets or phrases as "A pleasant Comedy", "A proved practice", "Performed before the Queen" etc. thus explaining the merit of the works were often suffixed to the titles by the printers or the publishers. The authors of such works were also sometimes extolled with such high-sounding titles as 'M.A.' 'a Gentleman', 'Lutenist and Bachelor of Musick in both the Universities' etc., evidently to lend authority to their names and attractiveness to their works. Some of the titles are indeed so inappropriate and foolish that it is difficult to believe that they had been supplied by the authors. Such titles, explanatory or otherwise, were in fact the handiwork of the printers who sometimes produced them even without the knowledge of the authors perhaps out of commercial motive. Such title-pages were at times actually used as posters for advertisement.

Towards the close of the 16th century the printers discarded the old practice of woodcut borders and the ornamental type borders and introduced something new—plain horizontal rules across the title-page. These rules were formed into various patterns according as the printers desired. Sometimes they appeared below the title itself or above the imprint or above and below the author's name and sometimes all around the title-page and sometimes around each page of the book having side-notes or printed in two columns.

(In the 17th century one of the commonest features of printed books was the engraved title-page which, though beautiful, was at

times highly pompous and overburdened. The eighteenth century however, saw a reversion to greater simplicity. The title-page had no longer any typographical elevation nor any ornamental wood-cuts. It assumed a sort of classical simplicity quite in keeping with the spirit of the age and hence it used to bear no more than the book's title, the author's name, the printer's or the publisher's name and the date. Gradually a little more information namely the authorship of the author's earlier works was added to his or her name and this practice has been still continuing since then. The whole of the title-page was generally printed in Capitals except of course the imprint which was printed in lower case. But the title-pages, specially of Baskerville and Bodoni, though simple, had a novelty and a charm unequalled by those of any other printer. With the romantic revival in the early 19th century there was again a marked change in popular taste. As the new age wanted profusion of both 'ornament and wording', new letter designs were thought of and consequently new type faces in quantities appeared on the page. New-born lithography played no mean part in altering the design. It freed the old type face from the limitation of the rectangular type body and encouraged the designing of the letters for the title-page along sentimental lines. Much of this work might be sentimental and profuse, and yet it cannot be denied that much of it was also delicate and graceful.

The tendency of the modern age is towards simplification as well as towards functionality or utility. This is evident in all things of the present century. Just as in architecture so also in book-building, the general tendency to-day is to make the design functional without, however, sacrificing beauty and art. The title-page in a modern book has as such, a functional design with of course ample scope of expression of beauty and art in it. There is in fact a happy wedding of space and words, a subtle harmony between utility and art in most of the standard books of the modern age.

Edition, Impression, Reprint, Issue, Variant, Cancel, Large Papers, Fakes and Facsimiles—their meaning and bibliographical significance.

These are terms often used in connection with book production, but they are still inexact in their definition. In fact there is no

standardised definition as yet of any of them and consequently they are still loosely used in our everyday language, written or spoken. But this is not desirable since this may lead to further confusion and error. To remove all ambiguity about their meaning what is, therefore, necessary is to define them as lucidly and clearly as possible so that bibliographers may describe books properly. Though no standard definitions have yet been evolved, the following may be accepted more or less as standard ones.

Edition. In the modern age an edition may be defined as the total number of copies of a book printed at any time or times from one setting-up of type including copies printed from the stereotype and electrotype plates made from the same setting-up of type. Some bibliographers also urge on that ground that an edition should also include all the copies printed from the text set up again from a stored monotype coil of paper. As there had been still some difference of opinion among publishers and book-sellers with regard to the definition of the term 'edition', this was defined again by the British Publishers' Association in 1929 to remove all misunderstanding about it. An edition, according to it, 'is an impression in which the matter has undergone some change, or for which the type has been reset'. A new edition is, therefore, produced only when there is some revision of the text or when the type is completely set up afresh. A book may thus be revised and reprinted many times and hence the terms 'second edition', 'third edition', etc. are used.

Variorum edition

This may relate either to an edition of a work that records all the textual variants in the author's manuscripts and in his revised editions or to an edition of a text that includes all annotations and commentaries on the text by earlier editors. As an example of the former kind we may refer to *The Variorum Edition of the poems of W. B. Yeats,* ed. Peter Allt and Russell K. Alspach (1957) and as an example of both the first and the second variety of a variorum edition we may however, cite *The New Variorum Shakespeare* which is still in progress.

Impression. This may be defined as the total number of copies printed at one time without removing the type or stereo or electro-plates from the press. Hence an 'impression' hardly presents any

variation. In modern times there may be sometimes several impressions to an edition because the publishers may store the type or plates and use them again whenever necessary. Each such printing constitutes a new impression of the same edition. In the early days of printing 'edition' and 'impression', however, meant practically the same thing, since the early printer used to distribute his type shortly after it had been printed from and hence if a reprint was required, the whole text had to be reset. In modern times by a 'new impression' is meant all the copies printed at one time from the same standing type or plates as the original and this differs in no way from a reprint. The publishers' Association of England has explained the term 'impression' more unequivocally when it has defined it as "a number of copies printed at any one time. When a book is reprinted without change, it shall be called a new impression to distinguish it from an edition."

Reprint. Literally this means reproduction of anything previously printed with little or no change. We know that when a book is completely re-set, a new edition is produced, though this does not always involve any revision of the text. A new edition may also be called a 'reprint' provided the text in it has not undergone much revision. In fact the term 'reprint' may also be used even in the sense of 'impression' because the latter is also produced by reprinting from standing type or plates. Though there is nothing wrong to call such a new edition or a new impression by the name of 'reprint', the modern practice is something different. A 'reprint' refers to all such copies of a book as are printed afresh at a time from the standing text type or from the plates of the same. So when an edition is revised and brought out, this should be noted as 'Second edition revised'. If however, it is merely reprinted by resetting the type, it should be described as '2nd edition re-set'. At any rate the term 'reprint' should be avoided as far as possible in all bibliographical description since this may often create some confusion in the reader's mind.

Issue and Re-issue. The copies of a book may be formed of the original printed sheets and yet they may appear in some special form because some new matter may be added or the contents may be differently arranged. Such copies are regarded as belonging to the same issue. An issue, therefore, comprises the total number of copies

of an edition which are put on the market at one time, differing from the earlier copies of the same setting up of type by the addition of new matter or by some difference in arrangement. If a new title-page be printed or new preliminary matter be added to the unsold original sheets, they should constitute a new issue or a re-issue. But the difficulty arises in the case of those books the edition of which was shared among several publishers, a certain number of copies of the title-sheet being printed with each publisher's name. We may refer, for instance, to the undated edition of Chaucer's works, issued at about 1545 different copies of which bear the names of different publishers. Similarly 1632 folio edition of Shakespeare also shows the names of different publishers in different copies. Now the question arises—should these be regarded as belonging to different issues or as having variant imprints? The answer is that if the books are the same in contents, the total number of copies put on the market at one time should be regarded as of the same issue and that the simultaneous publication of a book by a variety of people should not constitute separate issues. If however, a book be transferred from one publisher to another who publishes it with his own name after replacing the name of the original publisher, this should constitute a separate issue.

Variant : Literally it means something that differs in a particular respect from something else that it otherwise closely resembles. It is sometimes found that different copies of the same edition of early books present variation in reading and this has undoubtedly caused much trouble and perplexity to literary editors. The matter is not however, as complex as it appears to be if it is considered from the point of view of the early methods of printing.

Variation or variant might be of two kinds : accidental variation and intentional variation. The former was primarily due to displacement of types during the actual machining. When a printer noticed a loose type during inking, he did not always care to replace it by the right type but put in its place any type he could get at hand. Such variations are for the most part matters of a single letter and hence they present little difficulty to an editor. Intentional variation relates to the correction of the type during the process of printing. When an error was noticed, it was the common practice to stop the press and withdraw the forme for necessary correction and consequently slight

differences in text occurred from copy to copy. Sometimes in order to create 'ideal copies' corrections were also made shortly after printing but certainly before the bulk of the impression was put on sale. Such corrections were in most cases made by the author himself but sometimes they were also made by the printer's reader without the knowledge of the author particularly when the latter was absent during the process of its printing. But as printing in those early days of printing was done by the hand press, all the copies of the printed sheets could not be properly corrected. Some sheets since the error was noticed were corrected while others were left as they were. But as the sheets printed before the proof reading was being done were not destroyed but used, different copies of the book, some containing corrected sheets and some having uncorrected one presented variation in reading. This would have perhaps presented little difficulty to the bibliographers if the uncorrected sheets for different formes were kept for specific copies. But unfortunately this did not happen. Any specific copy of a book of this period is therefore, found to contain sheets from both corrected and uncorrected formes. That is why we sometimes come across a very large number of even striking variants in different copies of the same edition of the early printed books.

As regards variation in spelling within one book this seems to have been due to the individual compositors who were perhaps working on the text at the same time and not due to variation in author's manuscripts. The suggestion that the poor standard of printing of Elizabethan dramas was due to poor copies from which the printers had to work does not also stand to reason. Some poets and authors might have been indifferent, but there were some like Goethe, Tennyson and Pope who were so fastidious and concerned about printing accuracy that they never allowed variant readings in their works and compelled the printers to end up with them.

But as printing is now done by power-driven press it is no longer economical to stop the press, withdraw the forme and make the necessary correction. Hence small corrections are now made in a separate errata slip while the whole sheet is reprinted in case the corrections are voluminous. Moreover, the introduction of machine composition and the use of the modern method of printing from duplicate plates have also removed to a large extent the chances of variant readings.

Cancel : A cancel is a corrected slip which is substituted for what was wrongly printed. Its size may vary from a tiny slip of paper containing one or two letters pasted over those first printed, to several pages replacing the original ones. But the form of cancel that is commonly met with in early and even in modern books is a single leaf inserted in place of the original one. What is curious is that both the original leaf and the leaf it substitutes are indiscriminately called 'cancels' though the original leaf should be called 'cancellandum' or 'cancelland' and the corrected leaf which replaces the original should be known as 'cancellans' or simply 'cancel'. Though cancels had been common at all times, they were particularly numerous in the eighteenth century books. Even in modern books cancels are not infrequent.

The purpose of the cancel seems to have been this. If there was something grossly incorrect in the original print it was too difficult even for the easy-going early printers or the authors to overlook it and hence a corrected version was reprinted and inserted in place of the original while the book was bound.

How to detect a cancel. There is apparently no difficulty in detecting the cancels. If there were cancels, one could easily see where they were stuck on. For when a leaf was intended to be cancelled, this was cut out leaving a stub of paper on which the new leaf could be pasted. If the stub is found to be broad, one can easily detect the cancel by turning the leaf. But if the original leaf has been removed altogether without leaving any stub at all and if the book is properly bound, the discovery of the cancel is almost impossible. The way to detect it in that case is as follows :—

(a)   To examine if the paper of the cancelled leaf is different from that of the rest of the pages.

(b)   To see if there is a larger or smaller number of lines to the page than elsewhere.

(c)   To see if the lines are longer or shorter in the cancellation.

(d)   To see if the type or the manner of setting the headline, pagination, signature or even the text is different from that in other pages.

There are other tests too like the examination of the position of the watermark, the chain-lines, the gathering and the signature mark. In modern times for technical reasons it has become both easier

and cheaper to reprint two conjugate leaves, i.e., four pages of a sheet or the whole of the faulty sheet than to insert separate leaves.

Large Paper : One of the commonest methods of bringing out special and highly expensive books was to print them on a larger and finer paper. Costly books were also printed at times on vellum. William Morris who was distinguished not only as a poet and artist but also as a printer and decorator revived the use of vellum at his Kelmscott Press.

Large Paper was also used for certain classes of books parti- cularly Law books and the like by the Elizabethan printers and publishers for keeping expansive margin on the pages for private annotation. At the close of the 19th century there arose a regular fashion to keep excessive margin on the pages to bulk out small books into important-looking tomes. A critic humorously described such a book as 'an epigram in one volume' referring thereby to its small body of text compared with its large size. The great 18th century dramatist Richard Sheridan also satirised such a book by calling it "a rivulet of text meandering through wide meadows of margin". "A big book is a big evil" said a famous librarian of the great Library of Alexandria. Indeed such a book occupies needless shelf room and causes much inconvenience to librarians. Such books are, therefore, seldom suitable for public Library use though they may have some special value to private users.

Fakes and Facsimiles. 'Fake' literally means a counterfeit, that is, a faked article or a sham that is done up to make it presentable as something original and hence precious and 'facsimile' means an exact copy or an accurate reproduction of the original document. Faked books are of course rare in the world to-day though their number was not insignificant in the early days of printing.

Fakes are sometimes so perfectly done up that it is difficult to detect them and one without much experience and familiarity with a large number of early printed books cannot discover good fakes. Fakes may be of various kinds. There are, for example, complete reprints of early books which appear to be original editions. The number of such faked books is certainly very negligible because such fakes are seldom paying. The other class of fakes relates to such copies which have been once imperfect but have been perfected later

on by the insertion of leaves or parts of leaves, either in facsimiles or from another genuine copy. But if the insertion takes the form of an honest and unconcealed facsimile there should be no reasonable objection to it, for it is better to have such a copy than to have an imperfect one. Such a copy may indeed serve the purpose of an original edition to the literary editors and critics. There is still another class of fakes namely what appears to be a facsimile is not a facsimile at all, but a mere artful invention of the man who produced it. For example, the title-page in facsimile might have been provided to a book which had no title-page at all. It may appear that the facsimile had been made from one of the copies of the original still in existence and thus it may deceive the unsuspicious purchasers and book-collectors, though in reality the title-page might have been invented from half-title or even head-line. Such faked facsimiles might be rare but not altogether improbable.

How to detect fakes and faked facsimiles

To detect fakes and faked facsimiles is by no means an easy task, for forgers as a rule are men of considerable skill who never fail to guard against all possible clues by which they may be detected. Nevertheless some incidental evidence is left behind perhaps without their knowledge which in the long run leads to the discovery of the fakes. The best guide in this respect is perhaps the paper. If the inserted leaf be a genuine old leaf, the paper will be identical in quality and the chainlines, water-mark etc., in both will also be identical. If on the other hand the cancel or the inserted leaf be a facsimile, its paper will hardly correspond with that of other leaves unless of course an extra blank leaf of the original has been used for that purpose.

Facsimiles or leaves from other copies are inserted at times even now, particularly in those books which have come to possess a certain value. But such books, old as they are, have often suffered much from damp and ravages of worms and insects. Hence if a new leaf is to be inserted into such a book, artificial wormholes are to be made into it so that when inserted they correspond to those in the neighbouring leaves. If however, the inserted leaf is one taken from an old copy or a facsimile on old paper, having already some wormholes, it may be necessary to fill them up. But such a fake is not difficult to

detect, for one can easily hold the leaf up to light and see where it has been filled up.

Water-stains, dirt-marks, rust-spots etc., that are often found on pages of old books cannot also be easily imitated. Hence if a part of a book is water-stained but a page within it does not bear such stain or if the stain on it does not exactly correspond with that on the adjacent leaf, it is in some way or other a fake.

It is very difficult to detect faking in the books which have been washed, mended and rebound. Washing sometimes alters the look of the paper so completely that it is difficult to say which one is genuine and which one is faked. Hence a washed book should as a rule be looked upon with suspicion.

The forgers are very efficient and skilful people who sometimes arrange the writing of pages so perfectly that it is difficult to detect if they have been written or printed. The way to detect it is to examine such pages of pen-work minutely with a high-power magnifying glass which is sure to point out the difference.

The forgers sometimes again invent title-pages to books having no title-page at all. To the average readers such title-pages may appear to be just facsimiles made from the title-pages of some original copies still in existence, though in reality they have been invented from the half-title, head-line or colophon. To detect such fakes is not also much difficult. The arrangement and the general appearance of the facsimiles are so suspicious and the wording and the punctuation in the facsimile and the half-title or the head-line or the colophon from which they have been invented are so identical that they only deepen the suspicion that it is a definite case of fraud.

Even in modern times there are some books with different wordings in the title-page or with different dates or with addition of a dedication etc., which pass as 'original issue' to the book-collectors and therefore, command higher prices. These books often differ from the regular issues only in one or two lines, but their paper and type are the same. These so-called 'original issues' were in fact advance copies meant for the author and the publishers and not for sale, because certain alterations were made only after a few copies were bound up. But some intelligent faker saw that there was considerable demand for these so-called 'original issues' and he printed in facsimile the leaves bearing the characteristics of the so-called first issues for

insertion into ordinary copies which were so similar to the original ones that even the experts could not detect them. Such fakes can be detected by comparing the faked ones with the genuine copies as well as by thorough examination of the spelling and punctuation marks in both the original and the faked copy. Examination of paper of both after a few years may also lead to the detection of the fraud because paper which now matches so well with that of the original may in course of time change in a way that it may be different from that of the original.

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THE COLLATION OF BOOKS

And out of olde bokes, in good feith
Cometh al this newe science that men lere.

—Chaucer

The primary duty of a bibliographer or a cataloguer is to make entries of books individually. Hence he must be able to describe books and in order to describe them properly he must not only study and analyse the different parts of books, but must also understand the different processes involved in their production. It is the function of critical bibliography to highlight these areas of research and to focus the problems that are likely to be encountered during the process of analysis. It is the actual process involved in the examination of the physical make-up of any book for bibliographical purpose that is generally known as the collation of a book. Its aim, in the words of Roy Stokes, is "to discover all that can be discovered about the various procedures which go into the making of the whole book".[1] From this it follows that all the production processes through which a book has passed together with their effect upon the finished product must have to be analysed in order so ascertain their relative value. Bibliographical collation is, therefore, something different from ordinary library collation. Library collation is something simpler, easier and more rapid, but bibliographic collation involves critical study and bibliographical knowledge and research. While the purpose of library collation is to ascertain if the books delivered are in keeping with the terms of the order, if the sections or gatherings in individual copies supplied are complete, i.e. if any section in any book has been omitted, duplicated or inserted upside down, whether the pages are in correct order, whether the books are in physically perfect condition, the purpose of bibliographic collation is to ascertain if the copy in hand is perfect or imperfect or made perfect, if it is the first edition or a subsequent edition, if it bears the imprint in full or not, i.e. if it bears the name of the printer, place and date of printing and so on.

[1] *The Function of Bibliography*, p. 71.

Now, whenever a volume comes to a bibliographer's hand, he first asks himself and has to answer certain questions relating to it. First, what work or works does this volume contain ? Secondly, of what particular edition, recension and version of the work is this copy ? That is to say, by whom was this work edited and when, where and by whom was this printed and was the text critically revised ? Thirdly, is the copy in hand complete and perfect or imperfect or made perfect by the insertion of new leaf or leaves from the original or in facsimile ? Now, all these questions are relevant and may also serve as sure guide-lines only when we appreciate the importance of the individuality of the copy. If we describe, for example, Bacon's *Essays or Counsels* simply as Bacon's Essays we say nothing more than it is a literary work. On the otherhand if we describe it as "Bacon, Francis. The Essays or Counsels, Civil land Morall : With a Table of the Colours, or Apparances of Good and Evill, and their Degrees, as places Perwasion, and Disswasion, and their several Fallaxes and Elenches of them, the fifth complete edition, newly enlarged, printed in London by John Beale in 1639", we describe it bibliographically and thereby isolate it from the rest and thus accord to it an individual status. Though the information provided in the above description is all taken from the title-page of the book, this is quite sufficient for our purpose. As regards modern books or books of recent past we get answers to all the three questions stated above about them from their respective title-pages or from the entries made of them in the catalogues and the difference between this and the Standard Description is in fact very much insignificant. For it is a difference of degree of detail rather than of kind. All this sounds easy enough, but the difficulty arises when the book does not bear on its face such basic facts required for entry as the author's name, the title of the book, order of edition, date and place of printing and the evidence of of its perfection. In such cases it is often by much experience and research that the bibliographer can ascertain and establish such facts.

How to identify a work

To identify a work the bibliographer has normally to study as carefully as possible the *title-page,* the *colophon* and the. *Incipit* or Latin, "Here beginneth" one after another for either of them is sure to reveal necessary facts leading to its identification. But to identify

a work sometimes presents really a puzzling problem, particularly when the author's name appears only as a signature to the dedication or when it lies half-concealed in an *anagram*. An *anagram* is a transposition of the letters of a word, name or phrase whereby a new one is formed. For example, *army* may be anagramatized into *Mary*, *Eva* into *Vae* which means woe, *Gustavus* into *Augustus*, *Cannibal* into *Caliban* and so on. A classic example of such transposition is found in *Hypnerotomachia Poliphili* (Venice, 1499) in which Francesco Colonna's name appears in this way with the name of his lady Polia. In such cases the bibliographer has to ascertain the facts by the application of his intellect, commonsense and knowledge of the technique of book-building. There are again certain books which are either pseudonymous or completely anonymous. To identify such works often presents no difficulty at all. To attribute such works to their true authors one has only to consult certain bibliographical dictionaries exclusively devoted to them. If, however, such guides fail to provide the required information (which happens in rare cases), the bibliographer has to find it out himself by bibliographical investigation and original research.

There is still another class of volumes in which two or more works are published in one issue or assembled in one binding for the sake of economy. This practice was once almost universal particularly in the early days of printing when a volume sometimes contained even more than a dozen or more pieces. Such works were sometimes printed in the same type without distinctive headlines, pagination, signatures or title-pages and then bound together into one volume. The difficulty in identifying different works in such a volume is undoubtedly stupendous and hence the bibliographer seeking to do so has to analyse the volume as carefully as possible. One of the surest and safest guide in such cases is the signature, because if the printer intended to bind the second work with the first, he would certainly give it a distinctive alphabet of signatures either by doubling the signature letter or by using the upper case in the second work if the first was signed in the lower case. If the division between the two works is found to occur in the middle of a gathering or quire, it is certain that the two works are of one edition and bibliographically indivisible. In such cases neither the libraries owning them nor the individual owners find any difficulty in getting them separated and binding them as two separate books.

How to Identify the Edition of a Book

To identify the edition of a book is difficult for a variety of reasons. For there are certain books in which the printer's name, the place and date or any of these facts are omitted or disguised. There are certain other books again in which the author's names or the printers' are translated. Sometimes again, certain books give wrong place names. Such mystification or ambiguity is of course found to occur primarily in books printed in the cradle period of printing. The printed works of later days seldom contain such vagaries. Hence in the case of most books of the later period a bibliographer can easily find out the facts relating to the editing, translating and printing of the editions only by examining as thoroughly as possible the title-page, colophon, the preliminaries which include Dedication, Preface, Imprimatur etc. and the *Incipit* or the Latin, 'Here beginneth'. But in the case of books in which the printers' name or place or date or all these facts are omitted or disguised it is not so easy to find them out. It is often by much experience and knowledge of printing of various countries that a bibliographer can ascertain these facts. When the author's or the printer's name appears in translation as it is found in certain books of the German Renaissance period in which the authors' names were Latinised or Græcised, the bibliographer should have knowledge and tact enough to detect them. It is not certainly much difficult to recognise such names as Martinus Cæsaris or Martin Emperor and Henricus Stephanus or Harry Stephens which were used at times by the famous Antwerp printer Martin de Keyser and the great French Scholar-printer Henri Estienne respectively in some of their printed books. But the difficulty is stupendous when books provide wrong place-names of printing. Experience is necessary in such cases to suspect such books as well as to determine the true place-names. There were indeed certain English books printed in the late seventeenth and early eighteenth centuries which appear to have been printed in England though they were printed in the Low Countries because it was cheaper in those days to import books ready printed than to print them at home where there was a heavy paper duty. To detect such pseudo place-names what is, therefore, necessary on the part of a bibliographer is to possess thorough knowledge of the technique of printing then prevailing in both the countries. He will find, if he observes it closely, that the early Dutch compositors

ignorant of English had invariably set ij in place of y because the letter y did not occur in their language.

How to determine the First Edition of a work—and the value of the First Edition

The appeal of collecting old books, particularly first editions of earlier works is very great to lovers and collectors of books. Those who can resist the temptation have probably no time for any book at all. This hobby surely presupposes a high degree of mental development and a love of beauty and tradition. Though it is quite possible that a collector may possess the first editions of all the parts of *the Dynast* without having any conception of Hardy's philosophy or all the volumes of *Chatham's Correspondence* (1839) without any idea of their significance, yet like a drug addict he haunts the traditional haunting ground for a rare book or the first editions of the works of a celebrity. In fact he finds as much pleasure in the pursuit of his items as an occasional fisherman derives "from landing an unprotesting perch" or "as the big-game hunter derives from bagging his thirty-ninth lion." There were such bibliophiles or genuine collectors in 19th century Bengal. They were great zeminders and powerful merchant princes who took great pride in building up magnificent collections, comprising old and rare books and first editions of popular authors. Unfortunately these libraries have been scattered with the passage of time and the volumes stamped with impressive crests or signatures have found their way in the second-hand book stalls.

But the difficulty arises when the two editions of a work differently dated claim the proud priviledge of being the first edition. In such cases unless the book lover or the bibliographer is well versed in the art of printing he can hardly determine their priority. It should, however, be borne in mind that to determine the priority of editions is one of the most important duties of the bibliographers whose help was sought by the early collectors of books to ascertain the gunuineness of their purchase. The collectors of books even now devote much of their attention to the first editions of works of their favourite authors because the first edition exhibits the original thoughts of the author. The first or early edition is also preferred sometimes on purely sentimental ground particularly when the very copy in the collector's or book-lover's hand is found to have belonged to the

author himself or borne his autograph inscription. The importance of the first edition is also paramount for the purpose of restoring an incorrect reading. It is for all these reasons that there has been at all times so much demand for the first edition of a work particularly when it is by some celebrated author. But one thing should be guarded that this demand does not turn into a feverish craze or is not overdone like anything else. For it will be sheer folly to run after every first edition merely out of love of fashion.

There are various tests by which the precedence of editions can be determined. Handsomeness of 'get-up', as a rule, is a much better evidence of the priority of an edition. For once the reputation of a book is established the later editions are not reproduced with as much care as the first edition nor are they made as much costly as the first. Secondly, the first edition is also comparatively free from literal errors though it may not at all times contain all through it the wholly correct text. Thirdly, if the book is illustrated, the plates in the earlier issue are found more distinct than those which appear in subsequent editions. Fourthly, a comparison of the editions of a book is sure to reveal which edition was taken as the basis for printing the later one. For in most cases it is found that later edition of a book was printed from an earlier one and not from the original manuscript. Fifthly, comparison of the readings of the different editions will furnish a still better evidence though it will be a more pains-taking and lengthy business. Sixthly, signature sometimes provides a better clue as to the order of editions. For if the book was set up from the manuscript, it is certain that the printing started with the text and not with the Preliminaries because the preliminaries which include the list of contents with page-reference could not be printed until the text was printed in full. Moreover, as the prefatory matters including the preface and the dedication are written last of all in most cases they are printed last of all and hence they constitute a new gathering which, therefore, requires separate signature marks like asterisks or lower case letters if the upper case letters have already been used for the text. Normally the text begins with Sig. A leaving the preliminaries to be distinctively signatured. But in the case of a reprint the printer begins with the preliminaries which do not, therefore, bear any separate signature mark.

As regards the value of the later editions of a work they are sometimes as important as the first provided they appear during the

life time of the author, for they may contain alterations in the text made by the author himself and thus exhibit the maturity of his thoughts and ideas. We may refer, for example, to two editions of the 'Paradise Lost' published in Milton's own lifetime as also to as many as ten editions of 'The Pilgrim's Progress' the printing of which was supervised by Bunyan himself. All these are of greater importance than the numerous later editions. Such editions from an editor's point of view undoubtedly give us the best text and hence they are as important to the editors and scholars as their first editions. Neverthless the first edition of a work is still considered more important and second in importance only to the *holograph* or the author's manuscript which shows his first thoughts and the process of his correction. This is particularly so with regard to books printed in the sixteenth and seventeenth centuries when later editions were mere reprints of the first with addition of further printing errors. The First Folio Shakespeare of 1623, for example, was considered to be authoritative so far as the text was concerned because the subsequent editions like the second, third and fourth Folios were merely inaccurate reprints of the First. But even though these subsequent folios had no literary value at all they were still produced in quantities in deference to public demand and sold at times at unimaginably higher prices.

How to date an undated edition

To assign even an approximate date to an undated edition is the most difficult of all the tasks with which even an expert bibliographer is confronted and if, however, the book he is seeking to date has been carelessly printed, his chances of success are almost bleak and dim. In case the printer's name is known, his task becomes easier for in that case he can reasonably infer the date by investigating into a large number of specimens of his work. But if the printer is unknown, his task is almost hopeless. Neverthless there are certain standard methods by which the apparent date of printing of a book can be verified or a date can be more or less correctly ascribed to an undated book. These are as follows :

(i) Before entering into any scholastic bibliographical investigation directly it will be wise on the part of the bibliographer to check at first the entry into some standard bibliographical work. Such bibliographical catalogues as the British Museum Catalogue of Books

printed in the XVth century and the Harvard University's Catalogue of French Sixteenth Century Books, both famous for their collections and editorial scholarship may be of great use in assigning dates to books in English and French respectively, of the time. The Stationer's Register may also provide external evidence about the date of an undated book. Though it seldom records more than one edition which may or may not be the one in the bibliographer's hand, its value is still unquestionable since it may provide an approximate date. The Bibliographical Society's Handlists of London Printers in which books published between 1500 and 1557 are arranged chronologically and the Index to the Three-Volume Catalogue of English Books till 1643 in the British Museum may also prove useful. But as the entries therein are made under printers and not chronologically, the entire list of printers will have to be consulted. The Term catalogue again may be consulted for books published after 1640. If the name of the printer is obtained from any of these bibliographical catalogues, the problem is solved. If, however, the printer's name is not thus obtained, it will then be necessary to go to the library and compare all the books of the different printers of the approximate period with the book in question and see to which of the books it has close resemblance in respect of typography and style of printing and thus not only the true printer but also the date of the book can be more or less correctly ascertained. Besides, there are the printed catalogues of the great libraries of the world which are "repositories of an immense quantity and variety of accurate detail", the auction and sale catalogues of some of the leading book-sellers and auctioneers of the world that may also provide the date or at least a clue to it. But this is all preliminary and a sensible preliminary which must be first tried and if this initial step fails to solve the problem, certainly the main assault should be on the book itself. That is to say, the book itself must be properly analysed in order to find out if the date lies hidden anywhere in it or reasonably guess or establish the date from circumstantial and bibliographical evidences.

(ii) Date may sometimes remain concealed in a chronogram, i.e., the date may be given in such a device that apparently it cannot be ascertained. This consists in giving the roman figures of the date in a motto so worded that these letters when added give the exact date. They are printed either in upper case or in a different fount. Chronograms are often unintelligible. A comparatively easy example is

given below to show how the date is to be ascertained by adding together only roman numerals—

LorD haVe MerCIe Vpon Vs.

By adding the roman numerals we get

$$L+D+V+M+C+I+V+V=$$
$$50+500+5+1000+100+1+5+5=$$
1666 (the Plague year)

A little more lengthy example is cited below to show how the device of hiding the date was a fashion in the 17th century.

gUstaVUS aDoLphUs gLorIose pUgnans MorItUr
$$5+\quad 5+5\quad +500+50+5\quad +50+1\quad +5\quad +1000+1+5=1632$$
1632 = the year of Gustavus Adolphus's death.

(iii) If the printer's name is known, the dates of his activity will give the outside limits of date. That is to say, it is certain that the book must have been produced sometime during that period. A near approach to the definite date of the book may be made if the first twenty years of the printer's life when he did not start printing be deducted from his length of life and two or three be added to it in consideration of the fact that the book might have appeared still bearing his name as printer for two or three years even after his death.

(iv) The dates between which the printer or the publisher seems to have operated from a particular address may also give a clue to the date of some books of the time. Some of the publishers again brought out some books in conjunction with others. If such books bear no date, they can be placed between the few years when all of them were in business.

(v) The early printers changed from time to time their woodcut devices either because they were worn-out or because they wanted to introduce new ones and they very often recorded such changes in a work of reference. Wynkyn de Worde, for example, changed not less than seventeen times his device during his period of activity. Now, the dated books bearing such devices can give a clue to the date of various undated ones.

(vi) The early printers, as we all know, were often their own type-cutters and their own type-founders. But as their punches could not be as lasting as the modern ones, they had to change their founts every now and then. Caxton, for example, used as many as

eight text-types in course of seventeen years of his printing career. Now, the undated and unsigned books can easily be dated only by comparing them with those which are signed and dated, by arranging the latter chronologically.

(vii) A close examination of the wear of wood-cut borders, ornaments, devices and initials either because of excessive use or because of worm-holes may also help us in arranging the undated books in a chronological order. Copper plates also used to flatten and hence they gave inferior impression by and by. Now, if a book shows wider crack, more worm-holes or less prominent impression than another, we can reasonably conclude which one is earlier and which one is later in date.

(viii) Traces of general advances in the technique of printing may also be of great help to a bibliographer in ascertaining the priority of an edition. A book with a title-page, or with foliation or with signatures, or with regular line endings, for example, will always be later in date than one from the same press without such signs, for in the process of printing these developments came much later.

(ix) Signatures may also provide a clue to the order of an edition as well as to its date. For in the case of a first edition the printer starts with the text proper because the preface has not yet been written by the author and signs the first gathering of the text as B by leaving A for the Preliminaries or he signs the text as A by attributing an arbitrary symbol like an asterisk to be used for the Prelims. But in the case of a second edition in which normally no new preface is intended the printer begins with the half-title or the title and regularly signs the gatherings without any break. Hence, when the preliminaries form a separate gathering or section in a book, that is to be taken as the first edition of the work without the least suspicion.

(x) The watermark may also indicate the date of an edition because the book could not have been printed before the paper used in it was manufactured. Moreover, if the same paper found in a dated book be found in an undated one, it is quite likely that the two were printed within a short time of each other. The examination of the watermark has in fact dethroned the so-called first editions of such masterpieces of Shakespeare as A Mid-Summer Night's Dream and King Lear printed in 1600 and 1608 respectively.

(xi) When all other kinds of evidence have been considered, there is still one area namely chemical analysis of paper that may help us in arriving at the date. The ingredients of paper and their relative strength and weakness, the use of chlorine and bleaching agents and the use of loading materials—all these came by and by and not at one time and hence chemical analysis of paper is sure to reveal if it was made of chemical wood-pulp or mechanical wood-pulp, or of rag or esparto or straw, if it was bleached, if it was loaded and so on and as the periods when these developments took place are fairly known, it will not be difficult to fix a specific date for a specific piece of printing.

(xii) The first edition of a book is generally printed in larger format and in a more beautiful style and with more leaves than a later edition. That is to say, a folio edition appears first, then a quarto and still later an octavo. Notable exceptions to this rule are of course the special and collected editions. For example, the First folio edition of Shakespeare's plays was later in date (1623) than the quarto edition of his works (1619).

(xiii) Notes of ownership written in hand with date also provide sometimes a clue to the approximation of the date of an undated book for the book could not have certainly been published after that date.

(xiv) It must, however, be borne in mind that few of the aforesaid factors are decisive in themselves and hence, they are to be employed at times in conjunction with some others. Some of them again do not apply to the dating of modern books at all. Recourse in such cases has to be had to scanning advertisements in contemporary journals and advertisements at the back of books brought out by the same publisher. At any rate, the dating of an undated work may be a scholastic and painstaking job but in most cases it is not altogether a hopeless or baffling task.

How to date a falsely dated edition

The question of dating falsely dated editions is still more puzzling. For there are certain books which had been falsely dated in order to create the impression that they were not new editions. They were probably printed by some one who had no authority to do so and were then secretly sold to book-sellers out of profit motive. Such piracies and forgeries were quite common even in the world of book

production, particularly in the seventeenth and nineteenth centuries. We may refer, for example, to the existence of two editions of Love's Mistress by Thomas Heywood, both called 'Second Impression' and both dated 1640, though the later edition was most probably printed in 1660. We may also refer to the existence for some time of two editions of Mrs. Browning's 'Sonnets from the Portuguese' one bearing the date of printing as 1850 and the other as 1847 and yet each claiming to be the first edition, though the 1847-edition was later on proved to be a fake. We may cite similar other instances of this kind of bibliographical fraud.

The way to detect such frauds is to compare the copies of such different claimants as closely as possible to find out how and wherein they vary. The examination of typography, the paper and the watermark, the binding style, the collation of the text together with the proper consideration of the circumstantial evidence are sure to reveal facts necessary for the detection of the fraud as well as for the determination of the correct date.

But in the case of certain religious books, statute books and the like, of the past the original date is found to have been printed even in their subsequent reprints and the motive behind this, it seems, was not to deceive the buyers but to indicate either the year of their promulgation or the year of their issue. In certain books there was really some genuine mistake in printing the date. In early printed books the colophon was normally the place where the date used to appear and the early printers did not often care to change the original date even when they reprinted an edition from an earlier one or even when they reprinted the engraved title-page.

Coming nearer home we find even in our own vernacular certain old books published by the Serampore Mission, having two different dates printed in one and the same volume. Printed as they were in the cradle period of Indian printing these early Indian imprints are found to have two title-pages—one in English and the other in Bengali, each bearing a different date of publication. For example, the title-page in English of the second volume of the complete Vulgate text of the Ramayan by Krittibas bears the date of publication as 1802 while the Bengali title-page of the same volume bears a different date which is 1803. Now, how can we account for this strange anomaly ? The printing of two dates in one and the same volume seems to have been intentional, certainly not to confuse the

readers, but probably to indicate the period of time the book took to get published. But that is merely a surmise and not a certainty. To preclude all scope of surmise and to get at the truth what is, therefore, needed is bibliographical investigation and research into the field.

More puzzling than even this is the presence of two different dates—1832 being printed in Bengali and 1833 in English on the same page of the last edition of the Bengali translation of the New Testament by Carey published by the same Serampore Mission Press during Carey's life time. Here also we may merely guess that the two dates perhaps indicate the two outside limits of the start and finish of the process of printing of the volume, but we are not quite sure of it.

There are still a few more interesting and exciting examples of books in our own vernacular which have neither title-pages nor any statement nor the printer's name, the place of publication and the publisher's name though the dates at times appear at the end. Most of these books were printed in single loose, long and narrow sheets resembling the palm leaf, The texts in these books were not printed in familiar verse lines but in the running lines in imitation of styles of writing in the original palm leaf manuscripts. Two of such books of which we have heard are *Narottamavilas* and *Jagadisa Vijay* printed in 1815 and 1816 respectively. Neither of these books contains a tittle-page nor any statement nor the printer's or publisher's name and the place of printing. Now, to ascribe these books to the true printers what we require is to take to bibliographic collation. That is to say, we should compare these books with those of the same period having all such information and then see if there is any affinity between them in respect of type-fount, paper and the like.

To date such wrongly dated editions or editions with two different dates one requires long suffering patience. One is to make bibliographical investigation into the copies of different editions of the work in order to arrive at a conclusion. That is to say, one has to consider all the physical facts with regard to such copies such as their paper, type-faces, style of printing and registering, their binding and lastly the collation of the text. It is in this way that one can ascertain the date or at least make a near approach to it.

Bibliographic collation—what it means

It is not ordinary collation work which every library has to take to whenever new books are purchased, in order to ensure that no item in the list of purchase is defective. But bibliographic collation is not as simple and rapid as that ; it is rather slower and more complex. Bibliographic collation means bringing together for comparison in detail or for critical examination two copies of text or document hand-written or printed in order to ascertain the true text of the author as well as to determine the perfection of a copy. This is necessary particularly when texts in different copies of the same work vary from copy to copy or when the copy seems to be incomplete. After ascertaining the edition number of the work, its printer and the date the bibliographer is again to consider if the copy before him is perfect or not. In the case of early printed books it is, however, seldom possible to be quite sure - of it and occasionally there is no certainty about it at all. Still a bibliographer should try to ascertain if the copy at his hand is complete or not and for that he is to make a thorough examination of its physical structure or 'make-up'. That is to say, he is to critically examine the copy, leaf by leaf, and then to compare it with another copy known to be perfect or by reference to the description given of it in one or more of the text books. The first step in this direction is to count the leaves in order to make sure that none is missing. If the pages are numbered, there will be no difficulty about it. But if the book is unpaged, the catch words should be consulted all throughout and also the signatures, if any. If neither of them occurs which of course happens in rare cases, what is necessary is to follow the context from the foot of one page to the commencement in the next.

If the text in different copies of the same work varies from copy to copy, what is necessary is to compare all the versions of the text and then decide by linguistic knowledge and historical insight what the true text of the author should be. But this work belongs to the province of a literary editor rather than to that of a bibliographer.

It is needless to say that such kind of collation as we have described above is not necessary for all books entering a library. It is only the old books that should be collated in this way because many things may have happened to them since their first appearance in print.

Format

By format we ordinarily mean the size of a book. Just as an anatomist must understand the structure he examines, so also a bibliographer must understand the structure of the book the basis of which is the folding of the sheets of paper to form leaves. At various times there has been some uncertainty as to the meaning of the term 'format' even among bibliographers. There has been, for example, a tendency to call any squarish book a 'quarto' and any small book a '12-mo'. But among bibliographers at least the practice is now quite fixed and the terms in question are now solely used with reference to the number of times the original sheet is folded to form the leaves of the book. A whole sheet of paper which is not folded and which is often used for printing maps, proclamations and the like is usually called a 'broadside' or 'open sheet' or 'broad sheet'. When half of a sheet of paper is used unfolded, it is generally called a single sheet though it should be more justly called half-sheet. But when a sheet of paper is folded once giving two leaves or four pages, it is called 'Folio'. When it is folded twice giving four leaves or eight pages, it is called 'Quarto'. When it is folded thrice giving eight leaves or sixteen pages, it is called Octavo. In Sextodecimo it is folded four times giving sixteen leaves or thirty-two pages. In a folio book the size of the leaves is half of the original sheet, in a quarto book the size of the leaves is one-fourth of the original sheet and in an Octavo book it is one-eighth. In addition to folio, quarto, Octavo and sextodecimo there are two other formats namely Duodecimo and 24-mo the folding of which is somewhat different. These terms are written in abbreviated forms which are as follows :

Broadside = 1° or bs.
Folio = 2° or fol.
Quarto = 4° or 4to or Q°.
Octavo = 8° or 8vo.
Duodecimo or twelves = 12° or 12mo.
Sextodecimo or sixteens = 16° or 16mo.
Tricesimo-secundo = 32° or 32mo.
Sexagesimo-quarto = 64° or 64mo. etc.

Format

		16mo
	8°	
		32mo
Folio		
	Quarto	
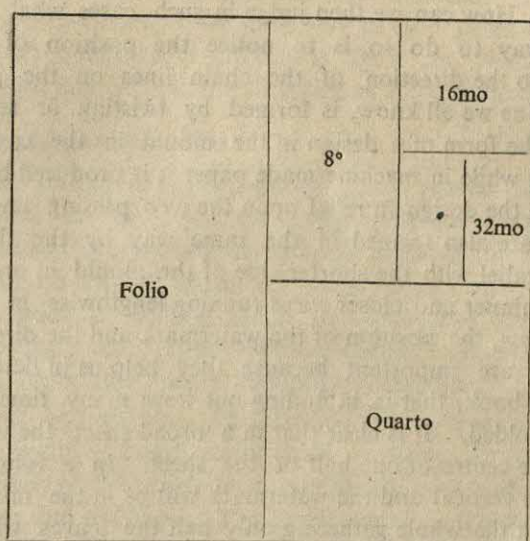
Truly speaking it is not correct to refer to the size of the books by these terms because there is now a great variety of sizes of paper used in book-printing. That is to say, the mere description of a modern book as folio, quarto, octavo or sextodecimo tells us nothing about its exact size. In general a quarto book has squarer pages than a folio or an octavo and a book in folio is likely to be very large. This is all the information that these terms give us by themselves. If, however, we wish to indicate the size of a book, we should call it, for example, a crown octavo meaning that the book has been printed on crown paper having a crown as watermark and measuring $15'' \times 20''$. A crown octavo, therefore, measures $7\frac{1}{2}'' \times 5''$ which is the usual size of novels. Imperial 8vo books will, in the same way, be $11'' \times 7\frac{1}{2}''$, Imperial sheets being $22'' \times 30''$ in size.

Determination of formats

It is not always very easy to say from the printed and bound book how the sheets in it were folded. As the size of the sheets varied considerably in early books, we cannot ascertain at all times the number of foldings from the final dimension, especially in the case of smaller books, nor can we always ascertain it by the number of leaves in a gathering, for a folio may have any number of sheets

up to perhaps twelve in a single gathering, a quarto may have eights and so on. How can we then judge in such cases what the format is ? The way to do so is to notice the position of the watermark as also the direction of the chain lines on the paper. The watermark, as we all know, is formed by twisting or soldering the wires into the form of a design in the mould in the case of hand-made paper while in machine-made paper it is produced by the dandy roll bearing the design in relief upon the web passing under it. The chain lines are also formed in the same way by the thicker wires running parallel with the shorter side of the mould in order to strengthen the thinner and closer wires running lengthwise in the oblong mould. Now, the position of the watermark and the direction of the chain lines are important because they help us in determining the format of a book, that is, in finding out how many times the sheet has been folded. It is clear that in a 'broad sheet' the watermark is found in the centre of one half of the sheet. In a folio the chain lines will be vertical and the watermark will be in the middle of the page, and in the whole gathering only half the leaves will bear the watermark while the other half will not. In a quarto book the chain-lines will be horizontal and the watermark will be sideways in the inner margin of the book, each of the two conjugate leaves bearing half of it to the exclusion of the other two. In an octavo book in which the sheet is folded thrice the chainlines will be vertical and the watermark will be found in the inner margin at the head, each of the four leaves of the eight containing one quarter of it. In a book in sextodecimo or sixteens the shape will again be squarish but small in proportion and the chain lines will be found running horizontal. As to the watermark in such a book, it is found at the upper outer corners of the leaves and consequently it is often trimmed away by the binders. This suggests that in the case of smaller size of books in which the watermark is often absent, format should be determined by the direction of the chain lines as also by the signature. In a book in 32-mo the watermark will be found at the lower outer corners of the leaves and the chain lines will be vertical. Here too the watermark may be absent owing to the fact that the leaves have probably been cropped in binding.

To facilitate the understanding of the format one any take a piece of paper bearing rulings on both sides of the sheet across its shorter side and also a diamond-shaped figure at the centre of one half of

the sheet indicating the chain lines and the watermark respectively. If the sheet is now folded in the same way as the printed sheets of various formats are folded, it will clearly show the position of the watermark in each as well as the direction of the chainlines.

Formats of 12-mo and 24-mo

The format of duodecimo or twelves which Austin Dobson has so fondly called 'the dear and the dumpy twelves' presents more difficulty because there are several possible methods of folding the sheet to produce twelve leaves or twenty-four pages. The two common methods of folding sheets in duodecimo are, however, '12-mo by cutting' and '12-mo without cutting'. It goes without saying that a duodecimo book is naturally a small one.

Twelve-mo by cutting : This method was in vogue in England in the late sixteenth and early seventeenth centuries. In this method after the printing of the sheets was completed each sheet was cut into two-thirds and one-third. The larger part i.e., the part containing the two-thirds of the sheet was then folded as in an octavo while the other was folded by two vertical folds to form four leaves and placed within the other folding.

Twelve-mo without cutting : This method was common in England during the nineteenth century. In this method instead of cutting any portion of the printed sheet it was only divided into three parts then folded twice across. That is to say, in this method it was necessary to fold the upper and lower thirds on the opposite sides of the central third and then to fold the long strip thus produced twice across.

The Chain-lines will in either case be horizontal and the watermark will be found towards the top outer corners of certain leaves and as such, it is likely to disappear in the process of binding.

A 24-mo can easily be produced by folding any of the above 12-mos in either direction, but probably it will provide us with quite useless shapes for book-work.

There is still another possible folding namely 18-mo, a format more common in modern French books than in English or any other books.

Reading List

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Saunders, C. *An introduction to Research in English Literary History*. New York, Macmillan, pp. 82-83, 100-107.

*Sen, Sukumar. Early Printers and Publishers in Calcutta.

Stokes, Roy. *The Function of Bibliography*. London, Andre Deutsch, 1969. Chapter 3.

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Walker, Alice. *Textual Problems of the First Folio*. 1953. p. 122.

FRAUD, AUTHENTICITY AND EDITING

"I have always suspected that the reading is right which requires many words to prove it wrong, and the emendation wrong that cannot without so much labour appear to be right."

—Dr. Johnson

Bibliographical Fraud and How it can be Detected

One of the most important purposes of bibliographical study is to establish the priority of one edition over another because the first edition of work is likely to contain the most accurate copy of the author's manuscript. This is not of course true in those cases where several editions of a work have appeared in the life-time of an author because he may have made several alterations in the text from time to time. But in the case of an author who is dead it is particularly necessary to establish, if possible, whether the book was printed from the manuscript or from an earlier edition, whether this was the original edition or something fake. It is certainly very difficult to ascertain this fact, but an experienced bibliographer who knows all about paper, printing, book-binding, illumination, collation and description of books, can very quickly narrow down the field of inquiry sufficiently to make special search possible. There are evidences of piracies and forgeries, particularly of literary works in the world of book production as there are in the everyday world. For there has always been among the literary enthusiasts and book collectors a craze for the first edition of a book and this has often created a market. Hence books have often been falsely dated to create an impression that they have been the first editions. The so-called original 1847 edition of Mrs Browning's *Sonnets from the Portuguese* seems to have been for that very purpose piratically printed by some one who had no right to print it and sold it to some book-sellers and book-lovers more or less surreptitiously at high prices. There are also examples of type-facsimile forgeries and they are mostly of short pieces by Tennyson, George Eliot and Swinburne printed for circulation among friends. Let us now see

how bibliographical knowledge and investigation led to the unear-
thing of the fraud of the so-called first edition of Mrs Browning's
Sonnets from the Portuguese.

This poem was first published to the world in the Second Edition
of her 'Collected Poems' which was supposed to conceal the intimate
nature of the feeling that inspired them. But the world did not take
long to realise that they were in fact the expression of her love for
Robert Browning written during that strange period of courtship in
Wimpole street. It is important both as literature and human
document of wide sentimental appeal. It is this intense human
interest as much as the intrinsic poetic value of the sonnets which has
raised them to an eminence in the book collecting world, enjoyed
hardly by any other Victorian poem.

For more than forty years after their publication the 1850-print-
ing of these sonnets was believed by all to be the first edition. In
1896 Edmund Gosse, the noted critic told for the first time in the
periodical named 'Critical kit-kats' a story of their original printing
which came as a surprise even to those who had known the Brown-
ings well. Gosse's announcement had practically dethroned the 1850-
Edition from its rank as the first and set up in its place something
much more exciting.

The official story of the origin of the privately printed edition
is this : Elizabeth Barret who was a life-long invalid and was living
the life of a recluse met sometime in 1845 Poet Robert Browning
and their acquaintance soon ripened into love as also into one of
the most romantic of literary love-stories. She married Browning
in 1846 in spite of the opposition of her father, a tyrant and a
sworn enemy of marriage and at once started for Italy which was to
be their home for many years. It is said that during their honey-
moon in Italy one fine morning soon after their breakfast Elizabeth
had very shyly thrust into the surprised hands of her husband the
manuscripts of the "Sonnets from the Portuguese" which had been
the very notes and chronicles of her betrothal. The Poet was simply
moved by going through the manuscript. "I do not reserve to
myself the finest sonnets ever written in any language since Shakes-
peare" he said. ·Having thus been encouraged by her husband to
publish these sonnets Elizabeth sent them to her dear friend Miss
Midford who was then in England, asking her to publish the sonnets
anonymously. The desire for anonymity was due to the natural

shyness on the part of the poetess and out of deference to Victorian Public opinion. Accordingly a small volume was printed entitled "Sonnets" by E.B.B., 1847, an octavo of forty-seven pages. Miss Midford was supposed to have left a dozen or so of these copies as legacy to her friend Mr. Bennet from whom Mr. Thomas James Wise procured a copy for himself at £ 15 and advised quite a few of his friends to buy them.

No one perhaps would have suspected any of these facts if the so-called "1847" Edition of the 'Sonnets' had been a little discreet in its public appearance. But we know that just as in the case of forgeries in the everyday world the cheats invariably leave behind certain clues without their knowledge which in the end often lead to the detection of the crime, so also in the present case of book-forgery the forgers unknowingly left behind certain loopholes in their work which, however minute, could not escape the notice of the keen-eyed literary detectives who by following the chain succeeded in no time in finding out the real culprits.

It so happened that in the catalogue of the auctioneers this particular book appeared in the company of certain other pamphlet poems of similar format and bibliographical status which were definitely declared to be frauds. Hence if their common 'provenance' could be traced back, that is, if they could be proved to have a common origin, the verdict against some of their number would deepen the suspicion against them all. The too frequent appearance of this so-called rare publication and the doubtful company that it kept aroused the suspicion of two American bibliographers, John Carter and Graham Pollard who investigated the matter thoroughly.

First, they tested the story of the 'provenance' of the so-called 1847 edition. The first thing that appeared to be strange was that Elizabeth should choose to have the sonnet printed in far off England for the sake of anonymity while Shelley and Landor and a few other English poets printed their poems anonymously in Italy itself. Secondly, when it was printed strictly for private circulation, it seemed strange why no copy of this edition was found with an autograph inscription either from the poetess or from her husband. Thirdly, when Browning was the prime mover in the printing of the 'Reading Sonnets' it seemed strange that he had not kept even a single copy of this edition in his personal library. Fourthly, when

the book was meant for private circulation, how could almost every millionaire and aristocrat get a copy ? Fifthly, scrutiny of the auction records and an enquiry among the owners of the copies revealed that none of them bore a contemporary date of acquisition. Sixthly, an examination of the correspondence of Miss Midford revealed that Mr. Bennet was far from being an intimate friend of her. Seventhly, a census of all the "1847" copies that were found in the libraries of England and in other parts of Europe pointed to only one source—a book-seller who confessed that he obtained them all from Mr. Wise.

But apart from all these circumstantial evidence, there are also some positive evidences which lead to only one conclusion that it was a case of fraud. For example the actual physical examination of all copies revealed that the paper used in them was of the same quality. This clearly revealed that they were printed on paper made of chemical wood which was not heard of in England before 1870. The other suspicious items with which this slender volume kept company were also printed on paper made of chemical wood. The evidence of paper composition apart, a close examination of the type-faces used in this edition also revealed that these type-faces did not exist before 1880. It clearly showed that the type 'k' and 'f' were Kernless types which were introduced at the end of the 19th century. Then again, scrutiny of auction records and enquiry among the contempo-rary owners of the copies disclosed that not a single copy was recorded or found as having anything but a modern binding. In Victorian times it was the common practice to bind a book of even slight value in full or half-leather and a pamphlet not thus dignified would naturally be put into 'binder's cloth' or the like. It was also the usual practice of the binders to trim the book's edges. But un-fortunately not a single copy of the book was found to have its tone or lower edges trimmed. Lastly the collation of the different copies of the book also indicated clearly that it was set up from a demon-strably later text.

The above were some of the proofs among a host of other indi-cations which confirmed that the so-called "1847" edition was a proven bibliographical fraud of the first category. These examples also tell us how very important it is for a bibliographer to know all about the history of a book in all its aspects.

Hitler's Diaries—another interesting Bibliographical Fraud :

Another interesting forgery unearthed in recent times is the so-called personal diaries of Adolf Hitler, Führer of Germany. It caused a series of mini-earthquakes in the newspaper world culminating in the resignation of two editors-in-chief of the West German news magazine *Stern*, who were instrumental in the 62 volumes of manuscripts being accepted as genuine. The motive behind the fabrication seems intriguing even now. But more intriguing than all the rest is why a historian of Lord Dacre's stature hastened to vouch for the authenticity of the diaries.

The story as to how they were obtained shows the inventive power of the forger as also his power of creating credibility and a sense of probability. It was said by the *Stern* that the diaries came from the aircraft which crashed south of Dresden while carrying documents from Berlin in 1945.

The alleged personal diaries roused suspicion in the mind of the experts. The diaries, according to Prof. Hans Boom, Archive's Director closely followed a published work on Hitler's life and repeated mistakes made in it. The hand writing in the opinion of Prof. Friedrich Kahlenburg, a senior federal archivist was another clue. As the handwriting through out the diaries was the same, all the 62 volumes were forgeries. The chemical tests of the papers and other materials used for the diaries showed that the paper used in them was not obtainable until 1955 at the earliest. The bindings also contained synthetic material not available before 1945. Ink used in them also showed that it was of a later date. All these proved irrefutably that the diaries were faked and hence *the Stern* stopped publication of the extracts from them.

Now, the question arises : If the diaries are a forgery, who wrote them and why did he write them ? It is said that the author of this forgery is one Konrad Kujau who has admitted it and got $ 3 million paid out by Stern's publishers. The *Stern*, on the other hand, refutes the allegation and says that it is the work of those who want to let them down. It is further said that the *Stern* reporter, Gerd Heidemann who found the diaries is a collector of Nazi memorabilia, and that some years back he bought and refurbished the yacht formerly owned by Field-Marshal Guering. It was intended to whitewash the past. But all these are mere

guesses.   At any rate, the Hitler Diaries are still in the news even though bibliographically they have been proved faked.

Problem of Authenticity

The examples cited above show how difficult it is to determine the authenticity of certain editions of work. Things, as we have seen, are not always what they seem and everything that appears in print is not at all times genuine. Yet there are a great many people who succumb so easily to the great human frailty—the temptation for original editions of works and letters of reputed authors and worthy personages. Forgers are aware of this weakness of the collectors and scholars and hence they bring out from time to time some so-called original editions of certain celebrated authors of which they are sure there will be considerable demand in the market. They are, however, very much careful in giving to the faked articles some semblance of the original and thus succeed in deceiving quite a good number of book-lovers and literary enthusiasts. It is really surprising that even eminent scholars and literary men like Macaulay and Scott accepted *Trelawney* as genuine and Boswell knelt in rapture and kissed some alleged Shakespeare relics. The Shakespearean documents which thrilled Boswell so much included some leases and contracts and a letter to Anne Hathaway with an accompanying lock of hair. These were later on proved to be forgeries made by William Henry Ireland (1777-1835) who had been above suspicion for a pretty long time. Being encouraged by success in his deceitful venture he brought forth another sham—a pseudo-Shakespearian play named *Vortigern and Rowena* and succeeded even in having it produced at Drury Lane in 1796. It was later on proved that *Vortigern and Rowena* had nothing to do with Shakespeare and that it was a forgery of which Ireland himself made an open confession afterwards. He could forge the manuscripts and deeds and signature of the 'bard of Avon' because he had access to Elizabethan parchments in the lawyers' chambers where he was employed. He also fabricated in forged handwriting another pseudo-Shakespearian play *Henry II* which also like his other forgeries deceived many experts and men of letters. He is remembered even today as a forger of Shakespearian manuscripts. Indeed his imitation of the Elizabethan handwriting was so perfect and convincing that it could very easily deceive such eminent literary figures as James Boswell and Henry Pye, the Poet Laureate.

To detect such frauds as well to determine their authenticity is therefore, no easy task.

There was literary forgery of another kind. Some forgers resorted to the dubious way to literary fame by attributing their works to others because their own names being not famous, they thought, were unlikely to sell. We may cite, for instance, the names of James Macpherson (1736—96) and Thomas Chatterton (1752—80). Macpherson tried to pass his own beautiful verses as translations from the Erse manuscripts of the poems by a doubtlessly lesser talent, Ossian, a legendary Gaelic Warrior-bard who is supposed to have lived in the 3rd century. They were highly admired by Goethe and others for their romantic spirit and fine rhythm, but their authenticity was challenged by Dr Johnson and others. Similarly Thomas Chatterton claimed his own scintillating poems to be the unpublished works of a 15th century Bristal poet, Thomas Rowley, a monk who never existed. Both won their deserved places in English literature as a result of the exposure of their literary forgeries. Such forgeries have survived in the history of literature because of their literary value. But all literary forgers were not so lucky. The author, of the most informative travel book, the '*Voiage of Sir John Mandevile*' for example, which covers a wide area of the world including the East, which he published under the name of John Mandeville has remained unknown even today. There was still another forger in France, Vrain Lucas who earned considerable notoriety in the art by forging more than 27,000 letters alleged to be from historical personages like Alcuin, Alexander the Great, Attila, Julins Caesar, Cicero, Cleopatra, Joan of Arc, Pontius Pilate and a host of others. Lucas earned between 1861—1869 a net sum of 140,000 francs by selling the various letters to one Michel Chasles, the eminent French geometrician and member of the *Academie des Sciences*, who had no suspicion of any imposture. Though all forgeries are bad, some are even sinister in motive in as much as they seek to distort history. The latest in the line are the alleged Hitlar's diaries.

To determine the authenticity of a work a bibliographer or a scholar should ascertain whether the work has been really written by the person who is supposed to have written it, whether it was written or printed at the time alleged to be the date of composition or printing and whether it was written under the circumstances and for the purpose alleged. So far as authorship is concerned we can, more or

less, be sure if the copy at our hand is found to have been written by the author himself and even so, we should be sanguine that the handwriting as it appears in the manuscript is the author's own and not a camouflage or an imitation. A modern expert with his microscope, camera and other measuring instruments does not take long to find out whether it was written by the author himself or by some one else in imitation of his hand. The ink which was used to write the book may also provide a confirmatory evidence. Ordinary ink, we all know, turns brown with age and hence it is certain that no allegedly old manuscript can be produced with modern ink. Some forgers of course used a sort of brown water colour, but this too could not withstand analysis. Such a forgery was committed by no less a scholar than John Payne Collier (1789-1883). He published in 1852 *Notes and Emendations in the Text of Shakespeare* based on corrections made in a copy of the Second Folio by some one whom Collier called the 'old corrector'. But it so transpired that the 'old corrector' was found out to be Collier himself. On microscopic examination it was discovered that it was Collier himself who had at first written in pencil and then in brown water colour all the entries in the Folio which he attributed all through his life to the so-called 'old corrector'. The reason why such a reputed scholar like him took to such a vile practice is of course difficult to ascertain. It seems probable that in his eagerness to provide confirmatory evidence in support of certain reading suggested by some earlier scholars that he succumbed to this temptation.

So far as date of composition or printing is concerned the paper of which a printed book or a manuscript is composed may also provide a clue. Though William Henry Ireland forged the Shakespeare documents and others upon the genuine paper of the time, most unwary forgers and fabricators seldom used genuine paper for their fakes. The watermark in the paper sometimes provides another clue. It enabled Dr Greg to discover by scrutiny that three Shakespeare Quartos—one dated 1600 and two dated 1608 were actually printed in 1619. We also know how scientific examination of paper yielded result in the case of some forged nineteenth century pamphlets and led to the unearthing of the frauds. The two American bibliographers Carter and Pollard found out by examination of the papers of the pamphlets that at least ten of them dated between 1842 and 1858 were printed on paper made of esparto which

was not heard of in England before 1862 and nearly thirteen were printed on chemical wood paper which was introduced there not earlier than 1873.

The type with which a book is printed may also provide us with some evidence bearing on the true date of a work. If a book bearing an earlier date be found to have been printed in the type of a later date, the date of printing or publication must undoubtedly be wrong. These are some of the bibliographical evidences which lead to the discovery of false dates and spurious authorship.

But when bibliographical evidences fail to provide perceptible results we should seek other evidences, internal and external in order to determine the authenticity of the work in question or the genuineness of authorship. It may, for example, so happen that the work in our hand may contain a statement by the author himself testifying to its genuineness. Shakespeare, for example, in the Dedicatory Epistle explicitly stated that 'Venus and Adonis is the first heir of my invention'. Such an evidence should as a rule be regarded as valid provided the work rouses no other suspicion with regard to style, theme and the like. Besides this, literary style and technique, similarity of language and vocabulary, peculiarities of spelling, textual evidence etc. may also throw some light upon authorship and authenticity. Fraudulent works are indeed betrayed very often by their language and sometimes also by discrepancies in their subject-matters. So far as language test is concerned it is undoubtedly a sound test and if a work of doubtful authorship can stand this test, it can at once be attributed to its true author beyond doubt. Thomas Chatterton (1752-1770), as has already been mentioned, wrote a great many imitations of the fifteenth-century literature and passed them off as the works of one Thomas Rowley, an imaginary monk of the time of Edward VI. However brilliantly written these pseudomediaeval works might have been, they were frauds after all and any one who had even a slight knowledge of the language and literature of the fifteenth century could easily discover them as such. Likewise if in an alleged mediaeval romance we come across in its *historiae personae* such names as Roland, Oliver and Ganelon together with those of Arthur, Lancelot and Gawain, Guinevere and a host of other knights of king Arthur's Round Table, we should naturally feel suspicious of it.

As regards external evidences they may cover a wide range of

situations and circumstances, events in the author's life, his own statement regarding authorship, statements by others about it, inscription on the title-page and so on. That *Troilus and Criseyde* was written by Chaucer was proved by his own statement in the Epilogue to his *Parson's Tale* where he mentioned the name of this work in the list of his other works. The statements by others also helped quite a few other books in being attributed to their true authors. In a letter to Voltaire Chesterfield, for example, said that he had a copy of *The Day of Judgement*, a poem by Swift and this fact was responsible for the attribution of the poem to its author Jonathan Swift. The authorship of Swift's *A Tale of a Tub*, a celebrated satire on 'corruptions in religion and learning' was also determined on the basis of an evidence—an extract from a letter written by Dean Swift, the son-in-law of Swift's cousin, Mrs Whiteway. It is said in the letter that Mrs Whiteway saw the author burst out in joy exclaiming, "Good God ! What a genius I had when I wrote the book !" just as he saw a copy of the book. Presence or absence of autograph inscription is also sometimes important for the work of attribution and dethronement though it should never be regarded as the only criterion or the sole basis.

Bibliography and Editorial Work

There is in most cases a deep and intimate connection between bibliographical evidence and editorial procedure. For the analysis of the printing of the first edition of an old work showing that it was set in by sections in different shops might turn out to be of vital importance in the interpretation of the transmission of the text in a subsequent revised edition. The revised edition might contain some formes printed from the standing type of the 1st edition and some others from the reset type, thus exhibiting substantial alteration in the text. The problem of the editor in such cases is to determine the authority of the variants in both the standing and the reset type of the revised edition of the work. He will probably find a marked difference between the variants in the first edition and the variants in the second. It might have so happened that corrections and revisions that the author had made in the first section might appear in the reset as well as in the standing type. But in the later sections though similar changes were made by the author himself, the variants in the pages printed from the reset type are compara-

tively few. Now, how can the editor explain this anomaly away ? The only explanation that is possible is that probably the copy of the first edition of the work which was corrected and annotated by the author was sent to the printers for printing the second edition and the printers in their turn passed it on from one hand to another among themselves, each altering his standing type in accordance with its marking without caring to note the annotations for the pages when he had already distributed the type and not yet composed the reprint. This, it seems, might have caused this anomaly and this also shows how bibliographical analysis serves as a great aid to editorial worn.

But even though bibliographical evidence is of primary importance to editorial work, critical judgment is sometimes equally necessary for the interpretation of the bibliographical evidence itself. For example, if in a book only one forme of a sheet is a variant, there remains no bibliographical evidence at all to show which of the states of the forme was printed earlier. If, however, one state of the forme perchance contains some errors like turned letters, transposed types etc., this state of the forme should be taken as the earlier one because no such error could have taken place in any subsequent edition. But such things occur in very rare cases. If the errors are typographical, they surely provide bibliographical evidence. But when literary changes involving alteration of meaning or improvement in the method of expression are found to occur, it is difficult to say whether they were made by the author himself or by the printer's reader. Proof-readers do not normally commit typographical errors in the copy though they may introduce verbal errors through misunderstanding. If there is greater mechanical change from one copy to another, that surely indicates the stages in the process of correction. But so far as textual changes in the work are concerned there is no certainty about it. For these changes might have taken place for a variety of reasons. For example, the proof-corrector might have used a word which is absolutely irrelevant in the context. It might have also happened that the author himself had made the changes for improving the language. In such cases sometimes bibliographical evidence and sometimes both bibliographical evidence and critical judgment are of prime importance. But when changes are found to occur in subsequent editions giving rise to wrong meaning it is certain that it was done by some one other than the

author and hence the critic should remain satisfied with this factual evidence and need not seek any further evidence bibliographical or otherwise

All these clearly indicate that a literary editor or a textual investigator must have a thorough knowledge not only of linguistics and antiquities, but also of critical bibliography by which we of course mean the science of the material transmission of literary text or better still, the investigation of textual tradition. As his chief concern is to determine the true text by solving the textual problems he will suffer at every step unless he has adequate knowledge of critical bibliography. Is it not really pathetic to see some editors desperately trying to set the order of some undated editions 'on the basis of some vague probability' when they might have easily solved the problem if they had a little knowledge of catch-words, cancels, facsimiles and such other bibliographical trifles ? We can cite quite a few instances of even some eminent critics having found deeper meaning—some philosophical or spiritual significance into some readings which, on bibliographical ground, were found to be corrupt. A classic example of this is found in F. O. Matthiesen's comment on the phrase 'soiled fish of the sea'—a misprint (in place of the correct reading 'coiled fish of the sea') made by an unimaginative compositor in the Constable standard edition of Herman Melville's *White-Jacket*. Without thinking for a while that this might be a misprint Matthiesen went on enthusiastically explaining the phrase in a *new* light which was a puzzle and a surprise to the author.[1] Professor Empson, a noted critic in his *Seven Types of Ambiguity* showered in a similar manner all his praise on Eliot's *Whispers of Immortality* on the supposed ground of some synthetical ambiguity made by a faulty type-setter. Printing errors are also quite common even in R. L. Stevenson's works and these errors have continued unchecked in edition after edition. To establish the text and to elucidate it properly what is therefore, necessary is the knowledge of bibliographical reasoning. This also clearly shows that the knowledge of critical bibliography is needed even with regard to modern printed texts.

Analytical or critical Bibliography examines all defects and inconsistencies discussed above and if the literary critic or editor

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[1] Fredson, Bower. *Textual and Literary Criticism*, 1959, pp. 29-30.

knows the basic processes of book production, his work in determining the true text and coming to a satisfactory conclusion regarding the various inconsistencies would be eased considerably. We have yet another example of such an error in one of Lady Macbeth's speeches causing grave doubt in the minds or the editors and critics :

"We fail !
But screw your courage to the sticking place,
And we will not fail............"   [Act 1, Se VII, L59-61]

Here the punctuation (!) has been a subject of controversy. Variant texts showed difference in punctuation after 'we fail', some having a full-stop, some a question mark and some a note of Exclamation each of which makes not only a difference in meaning but also a substantial difference in the analysis of Lady Macbeth's character based on her pronunciation of these words. What the best reading under these circumstances should be depends upon the context as also upon Lady Macbeth's mental state at that time.

It is only for the above reasons that Copinger has called bibliography "the grammar of literary investigation" and Dr. Greg has said that bibliographical investigation is "three-fourths of textual criticism". A bibliographer may not be a good editor because mere bibliographical knowledge is not enough for editing a work in which text is variant or corrupt, but to try to edit such a work without adequate bibliographical knowledge, I must say, is sheer impertinence. An editor should therefore, be partly a bibliographer and partly a critic because though his work is primarily critical, a large part of it is also bibliographical.

Method of Editing

Though students of Library Science, bibliographers and librarians are not directly concerned with editorial work, they are still to understand the problems and techniques of editing so that they may evaluate the works edited by others and discriminate between good and bad editions. Really speaking unless they possess some knowledge of editorial work, they cannot properly evaluate the critical editions containing volumes of notes, comments, and emendations, with which they are to work. Hence a discussion on the problems and techniques of editing will not, I think, be out of place in this context,

A critical edtition, as its name implies, is something different

from a children's edition or a students' edition or even an edition meant for the ordinary adult readers. It is rather an edition meant for scholars and serious students and hence it is imperative that it should provide the author's correct text. Naturally, if there are errors in the text, they should be definitely eliminated because they may be due to the carelessness of the author or of a copyist or of a compositor, or they may be due to the ignorance or carelessness or even prejudice of an earlier editor. If there are different readings or allusions to mythological names and incidents that are likely to prove difficult for the readers, they should be properly explained in the Notes for their benefit. There should also be a commentary in order that the readers may appreciate its literary value and historical significance.

So far as earlier works are concerned the editors are to depend primarily upon printed editions. If, however, a manuscript of the work be available, the editor's task becomes a little more difficult because he is to trace in that case by means of textual notes how the text has developed from its manuscript stage to its definitive form. Moreover, there may be several versions of the text out of which he is to choose one which, he thinks, contains the basic text. By basic text he means the text which represents the author's final intention, or in other words, the text that brings the readers close to the author's definitive and complete thought. To get the basic text the editor will have to hunt out many sources viz. catalogues of important libraries and various bibliographical tools. He will probably get various versions of the text which again may appear in various forms such as *holograph*, i.e., manuscript written wholly by the author in his own hand, manuscript written by another with the author's approval, published editions supervised by the author himself, unauthorised editions and so on. Of these the holograph undoubtedly provides the true text because there may be nothing more authentic than the author's own words written out in his own hand. But the printed text very often provides a better text than even a holograph because it may contain corrections and revisions that the author had made while reading the proof. So far as old classics and works prior to the seventeenth century are concerned the question of choosing between the manuscripts and the printed text does not arise at all because in most cases there are no manuscript copies at all. Hence when there is only one printed text, the editor is practically bound to use it. If, on the otherhand, there are,

several versions the editor is to choose between them for the basic text, whether it occurs in the first edition or in the last. Normally it is the last edition that represents the author's final intention, because it is in this edition that he got the last opportunity of incorporating the desired changes provided it was brought out during his life time.

But it may also happen that the text which appears to give the best readings is found in an edition that came out only after the author's death. In such a case it is quite likely that the latest edition that appeared after the author's death was printed from a copy in which the author himself made the alterations before his death. If the editor is sure of it and can prove by bibliographical investigation that the best reading is the fruit of the author's own revision, he can take it to be the most authentic text. At any rate too slavish following of the 'last edition' or the 'first' is neither desirable nor good.

But to decide upon the basic text is not so easy particularly when there are several printed texts or versions. For that what is necessary is to collate i.e., compare all the versions including manuscripts line by line, nay, word by word and letter by letter. While collating the different editions if any variation is found, that should at once be recorded. It is not of course necessary to collate all the versions because many of them may not have any authority at all. It is only such editions in which the author might have intervened that should be properly collated to determine which of them should be taken as the basic text. Collation is also necessary to remove textual error ; for if the basic text is corrupt, another edition may provide the correct reading. If however, both the readings are identical and appear to be wrong, they may also suggest to the literary editor the probable emendation. Besides this, collation may also throw some light on the meaning of even those passages in which there is no necessity of emendation because there is no error in them.

Next comes the questions of emendation. As a matter of rule the editor should adhere to the basic text all through. But in places where the original text does not make any sense or the meaning it conveys seems to be irrelevant in the context, it is the duty of the editor to emend i.e., correct the text. Dr. Greg has, therefore, rightly said that an acceptable emendation is "one that

strikes a trained intelligence as supplying exactly the sense required by the context, and which at the same time reveals to the critic the manner in which the corruption arose".[1] It is in such cases that the editor should introduce the new reading in the text and relegate the original reading to the *footnotes*. It is also his duty to point out the difficult and puzzling lines and offer suggestions for emendation in the footnotes.

The editor is also to decide whether he should reproduce the original text exactly in the same form as is found in the basic copy or whether he should improve upon it by modernising the spellings and punctuation marks as well as by introducing modern types. Each has of course its own merit. For example, if a facsimile of the original is furnished, it will serve the purpose of those interested in bibliography, printing and orthography while if it is produced in modern types instead of in Black letters, it will undoubtedly offer to the average readers an easy and comfortable reading. But since it is a critical edition meant for scholars and critical students who are quite familiar with archaic reading and Black Letters, it is desirable that a facsimile should be reproduced in order to retain the atmosphere of the original. But while giving the original reading the editor should make the minor corrections and for that he need not give any footnotes. For example, he should correct the obvious mistakes in punctuation, put the hyphens which have been carelessly omitted in the original, substitute the letters of the right font and so on. If it also suits his taste, he may use 'w' in place of 'vv', 's' in place of 'f', 'u' in place of 'v' and so on. He should also correct such mistakes as are apparently the errors of the copyist or the compositor.

Lastly comes the question as to how the original text, textual variants, notes and interpretations should be arranged in the pages. In books in which the notes and comments are not bulky, it is better to give them on the same page along with the passages to which they refer and to use three different sizes of type for three different kinds of matter—one for the text, another for textual notes and a third variety for other notes. But when annotations out-bulk the text, it is better to insert the notes and commentaries at the end of the text or at the end of the volume. If the book, however, runs into several

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[1] *Principles of Emendation in Shakespeare*, p. 5.

volumes and the annotations are also voluminous, it is better that they are printed in the last volume.

How to Edit a Shakespearean Classic

The term 'classic' is derived from the Latin word 'classicus'. The metaphor is taken from the division of the Roman people into classes, those in the first class being called 'classici". In the past the word 'classic' was accordingly a synonym for the choicest literary product of ancient Greece or Rome. But to-day it has an extensive province and it includes not only the great literary works of ancient Greece and Rome but also any other standard works pertaining to other countries which have stood the test of time by virtue of their literary merit, value and excellence. A classic, therefore, calls for no further revaluation, evokes universal applause and continues to be read probably for no other reason than the desire of pleasure and is praised only because pleasure is obtained. In a word, it is a work about the literary merit of which there is no difference of opinion and about which the judgment is more or less definite, irrefutable and unchangeable. Shakespeare's *Hamlet* or Kalidasa's *Abhijnana-Sakuntalam* is, therefore, by general consent entitled to the rank of a classic of a very high order.

Now, before we proceed to discuss the processes involved in the editing of a classic let us first explain what editing of a classic means. To edit means to present anything in a disciplined manner —to arrange, to annotate or otherwise prepare an author's work for publication. This description is, therefore, objective. But the editing of a newspaper is much different from the editing of a classic. The editor of a newspaper generally rearranges news and interprets them in the light of his own bias, prejudice or the political persuasion he represents. But the duty of the editor of a classic is to present the text of the classic as well as other materials in such a way as may guide the readers in making a truthful, objective study. Hence the editor of a classic must be impervious to all sorts of influences. It should be his chief aim to weed out all superfluities and falsehoods and to present the precise or definitive edition. But this is not a very easy task because most of the authors of the classics prior to the 17th century have left neither the manuscripts of their works, nor any autobiography nor anything except some vague references here and there in their texts.

This will be quite evident if we consider in this connection one of the master-minds of old namely Shakespeare of Elizabethan England.

The great genius whom Ben Jonson called the 'Soul of the Age' and 'Star of poets' and whom Milton regarded as 'Fancy's child' had been for long a subject for conjecture, whether really a poet and a playwright under that name ever lived in England. Indeed there have been men eminent as critics and writers who have gone so far as to deny the world's greatest playwright even the authorship of his works. The great Baconian hypothesis that the great philosopher Francis Bacon wrote the plays under the pen-name of Shakespeare, the Rutland theory that the Earl af Rutland wrote the works attributed to Shakespeare, the Derby theory that it was Lord Derby who wrote all the plays under a pseudonym, the Oxford Theory that Edward de Vere, Seventeenth Earl of Oxford was the true author, the Raleigh theory that Sir Walter Raleigh, the great intellectual of Elizabethan England fathered all the works attributed to Shakespeare, the Marlowe theory still believed by some people including the famous American critic Calvin Hoffman that the plays are really Marlowe's and that Shakespeare was a mere 'stooge' and a fraud' and similar other interesting theories were advanced from time to time to prove that Shakespeare was either a myth or a fiction and that a third-rate actor like him could by no means be the author of such magnificent plays and sonnets. Indeed there has been many a contender for the honour of being the author of the plays and many a critic has been there to lend support to their claim. "I am sort of haunted by the conviction that the divine William was the biggest and the most successful fraud ever practised on a patient world" said no less an author than Henry James[1]. The opinion of the distinguished editor and scholar Henry Watterson is still more interesting. "The man who can believe that William Shakespeare of Stratford-on-Avon wrote the dramas that stand in his name could believe that Benedict Arnold wrote the Declaration of Independence and Herbert Spencer the novels of Dickens"[2]. Charles Dickens himelf had some reservation about the authorship of Shakespeare's plays and therefore, declared,

[1] Quoted by T. C. Meudenhell in the "Town of Talmadge—The Bacons and Shakespeare", reprinted from *The Ohio Archaeological and Historical Quarterly*, 1923, pp. 24-25.

[2] Colvin Hoffman. *The murder of the man who was Shakespeare*, N. Y., Grosset and Dunlap, 1960, p. xii.

"The life of William Shakespeare is a fine mystery, and I tremble everyday lest something should turn up".[1] Mark Twain said practically the same thing when he stated, "About him you can find nothing. We can go to the records and find out the life history of every renowned horse of modern times, but not Shakespeare".[2] We can add a few more illustrious names to the list of these celebrities who also thought that there was something incredible and absurd about the Shakespeare authorship.

As against these opinions there are, however, contemporary records which point to Shakespeare being the bonafide author of the plays. We can, for example, refer to the envious effusion made by Robert Greene, a great contemporary of Shakespeare. "There is an upstart Crow, beautiful with our feathers, that with his Tiger's heart wrapt in a player's hide, supposes he is able to bombast out a blank verse as the best of you ; and being an absolute Johannes Factotum is in his own conceit the only Shake-scene in a country".[3] The name 'Shake-scene' leaves us in no doubt as to who this Shake-scene was. We have also the evidence of Heminge and Condell, two of Shakespeare's fellow actors and the editors of the First-Folio (1623), of Webster in the preface to *The White Devil* (1612), of Francis Meres in *Polladis Tamia* (1598) and of many others including the great Ben Jonson who said in his *Discoveries* posthumously published in 1641, "I love the man and do honour his memory as much as any." Despite all this testimony and authentic statement the identity of Shakespeare has been called in question. Yet this 'Sweet Swan of Avon' has been considered to be 'the most astounding cheat in history', as if he never existed !

The reason why all these pleasant and fertile conjectures have arisen is that Shakespeare has left no literary history. That is say, he has left no manuscript of his works nor any record of his ever having written any of the plays commonly attributed to him nor any autobiography. All that he has left are one will, two signatures and a host of interesting anecdotes. Besides, he has been living in the praises of his contemporaries. So far as the will and testament are concerned there is not the slightest reference anywhere in it to his proprietary rights over the plays and sonnets previously published. But that

[1] Ibid., p. xii.
[2] Ibid.
[3] Greene, *Groatsworth of Wit*.

may be due to the fact that he had already sold the plays to the theatrical companies that brought them out. At any rate there is no positive evidence that this was so. The result is that his text is less certain than that of even Sophocles. Dr Johnson, therefore, justly said, "To have a text, corrupt in many places, and in many doubtful is among the authors that have written since the use of types, almost peculiar to Shakespeare." The causes to which it is due seem to be as follows :

Shakespeare did not write the plays as literary experiments but to earn his living. The Globe which was run by royalty and 'dukedom's patronage' gave Shakespeare his livelihood and in those days as hard competition used to prevail between the theatres, it was quite likely that the manager of the Globe seized the manuscripts of the plays so that they might not be palmed off to other hands or to other theatres. From this it seems also probable that while a particular play was being staged, two or three persons with indifferent education and with doubtful shorthand stealthily noted down the drama, actors misquoting or adding lines. These stolen plays were then surreptitiously joined and printed in 1 size quarto without the concurrence of the author or of the proprietor and they suffered yet another depravation from the ignorance and negligence of the printers in those early days of printing. Seven plays were published in this manner and they are now known as Bad quartos. This attack on their property naturally provoked a reaction in Shakespeare and his company who, therefore, brought out in a spirit of retaliation fourteen authorised or authritative texts in contrast to the seven distorted or mutilated versions. These are known as Good Quartos. But even in respect of Good Quartos Shakespeare neither revised the proofs nor supervised their printing and consequently they also remained faulty or corrupt in many places and in the mean time Shakespeare had died before he could mend matters. Yet the supreme merit of these Quartos is that they were contemporary copies.

John Heminge and Henry Condell, Shakespeare's fellow-actors also published a Folio edition (first published in one volume). They had great advantage in this that they could lay their hands on prompter's versions or copies which were made from Shakespeare's manuscripts. But even in this there was neither printing accuracy nor act nor scene division, nor 'Dramatis Personæ'. Hence it cannot be called an edition in the real sense ; it was merely a compilation of Shakespeare's plays. A few years later the 2nd Folio edition was

published with the addition of more plays and gradually the Third and Fourth Folios were brought out in 1663 and 1685 respectively. The reasons why Shakespeare did not publish his plays himself seem to be that he used to get more money from the theatres than what he might have got from the Publishers and that there was nothing in those days in the nature of modern copyright to protect the author's interests. Even if the plays were published by Shakespeare himself mistakes would have still occurred, for in those days proofs were corrected by the Printer and were hardly sent to the author and consequently fresh mistakes occurred. It is for all these reasons that there are different kinds of readings and errors in his plays. Hence every effort should be made to establish the authenticty of what he wrote though we are not sure if we shall at all be able to know any day the exact words that he wrote.

Under the circumstances noted above, it is difficult to bring out a definitive edition of Shakespeare. By 'definitive edition' we mean a perfect edition in which the editor is absolutely sure of the author's writings. But though a definitive edition of Shakespeare is not possible, an 'authoritative edition' is possible. An 'authoritative edition' means an edition which commands general acceptance because of its authoritative contents. To bring out such an edition the editor should read all the versions of the play, verify all available information and should be well cognizant of all the customs and conventions of the time. The editions sometimes differ so widely that the constitution of an eclectic text, that is, a text chosen from different editions or sources becomes difficult. Hence it is not desirable to select one edition and neglect the rest. The editor should therefore, compare the quartos and the folios and point out the variants. He should try to understand the text and find out by linguistic knowledge and historical insight what is Shakespearean Apocrypha (anything of doubtful authorship) and what is Shakespearean. Emendation, that is, correction or alteration of faults in a written text may be necessary in certain places, but the editor must be sure that his emendation makes sense and grammar and is in keeping with the context and that he does not introduce correction where there is nothing to correct. He should remember that emendation is only a small part of his job and that his primary duty is restoration. In a word, he should avoid conjectural emendations of the text and wherever possible, he should retain original readings and properly interpret them. Dross is to be relegated to

the foot. The judicial quality of the editor is also very important because he cannot reject even a line without drawing the reader's attention. He may also quote previous editions in support of his retention or rejection of particular lines. As regards annotations the editor should tackle evey knotty problem and explain every difficult passage, but should by no means unnecessarily emphasize the obvious. As the purpose of providing notes is to aid the understanding notes should neither be sketchy nor hazy. Problems relating to the text and construction should also be discussed in as lucid a manner as possible so that the wood is never lost sight of in the trees. But whatever that may be, notes which, in the words of Johnson, are 'necessary evils' should be accommodated as far as possible in the very page in which the text appears, either around the text or at the foot of the page just below the text.

From all these it is clear that to edit a Shakespearian play one need long suffering patience. His business is to arrive at truth, or as near it as he can, and to do that it is often necessary to spend both time and labour even on small matters. To him, as Johnson said "nothing is a trifle by which his author is obscured". He should avoid petulance and self-conceit. He must be humble and must possess a great degree of sensibility.

How to edit an Indian classic

To edit Indian classics, particularly those by Sudraka, Bhasa, Kalidasa, Subandhu, Bharabi and others is more difficult than to edit even Shakespearian classics because while we are at least sure of Shakespeare's date, the dates of some of these great Indian classical poets are still matters of conjecture. Of these famous classical poets again the date as well as identity of Kalidasa is still a riddle. No one can say with any amount of certainty whether this greatest of ancient Indian poets to whom the great European scholar William Jones assigned a place as high as Shakespeare and who, in the words of the celebrated European critic Schlegel, belongs to the 'sons of song' really flourished in the century preceding the beginning of the Christian era or in the great Gupta period (300-650 A.D.). Scholars both Indian and foreign are sharply divided on the question of his date and the dates frequently attributed to him vary from the eighth century B.C. to the seventh century A.D. Most of the European scholars like Fergusson, Kern, Max Muller, Keith, Vincent A. Smith and others are inclined on epigraphical evidence,

to place him in the reign of one or more of the Gupta kings—Chandragupta II, Kumargupta I and Skandagupta of whom the first two also assumed the title of Vikramaditya. They think that as the Gupta Age witnessed the revival of Sanskrit learning after a long period of deadening slumber Kalidasa, its greatest exponent must have lived and flourished in that age. But most of the Indian scholars like Apte, Kale and others and a few European scholars too like Monier-Willams hold on linguistic, religious and historical evidences that the great poet must have adorned the splendid court of the great monarch Vikramaditya I of Ujjain who introduced the *Vikramabda* or *Samvat era* at 66 B.C. in order to commemorate his victory over the Scythians or the Sakas. His reign, it is said, was marked by a unique brilliance hardly matched by any other reign in any age or country. It is further said that he was a great patron of art and learning who had nine illustrious men of genius in his court who were admiringly called 'nine gems' of whom Kalidasa was, by general consent, the brightest.

Then again, as many as forty-one works are generally attributed to this Indian Shakespeare of which only six are acknowledged by all critics and editors to be undoubtedly his. The authorship of the remaining works is still doubtful. Doubt also persists with regard to his parentage, his life and activity. Lastly, there is still the controversy as to who this Kalidasa was, whether he was a Kashmiree or a Bengalee, whether he was Matrigupta, a sixth century king of Kashmir as mentioned by Kalhana, the author of Rajatarangini, or whether he was the brightest gem of the court of Vikramaditya of Ujjain or whether there were more than one Kalidasa. Truly speaking in Sanskrit literary history there were many poets who bore the name of Kalidasa and according to Rajasekhara there were at least three whom he knew so well. From this it seems that the lesser works which can by no means be attributed to the immortal poet might have been written by these pseudo-Kalidasas who, in the absence of any document or statement regarding the works by the poet himself found an opportunity to confer the fatherhood of their inferior works upon him. Doubt also exists with regard to the chronology of his works. Now, the reason why so much controversy arises with regard to his date and identity, authorship and chronology is that this prince of Indian poets had studiously maintained complete silence about himself in his works. In fact we find no incident or allusion referred to anywhere in his

works that may directly throw some light on his personal history or any remarkable event of his life. In the words of Hazlitt 'he was the least of an egotist that it was possible to be'. His poetical productions alone stand as an immortal monument to his incomparable poetic genius.

To this prince of Indian poets only three plays—*Abhijnana Sakuntalam, Vikramorvasiyam* and *Malavikagnimitram* are attributed and of these again the *Abhijnana-Sakuntalàm* is the greatest and the most popular. It is indeed the masterpiece and the most celebrated drama of the greatest mastermind in Sanskrit literature in praise of which not only his successors in India but also European poets and scholars of much later times burst out in rapture. Goethe, great German poet was so much enraptured by the charms of our poet's muse in the *Abhijnana-Sakuntalam* that he burst out in the following poetic eulogy :

> "Wouldst thou the young year's blossoms and the fruits of
>   its decline,
> And all by which the soul charmed, enraptured, feasted
>   and fed ?
> Wouldst thou the earth and heaven itself in one sole name
>   combine ?
> I name thee, O Sakuntala, and all at once is said ?"[1]

We may also quote profusely from various European orientalists and critics like Humboldt, Sir Monier-Williams, Schlegel, Lassen and others to prove that the *Abhijnana-Sakuntalam* is one of the greatest of all that have been written in human tongues since the beginning of writing. Kalidasa is undoubtedly the greatest poet of India after Valmiki and Vyasa and in the words of Prof. Lassen he is "the brightest star in the firmament of Indian poetry," and his *Abhijnana-Sakuntalam* is considered by all to be the best of all his writings and one of the hundred best books in the world.

But to bring out a correct edition of the text of the *Sakuntalam* is not as easy as it seems. For there are not only various original manuscripts of the work found in different parts of the country, but the texts of these manuscripts also read differently. Even in respect of the length of the text the manuscripts found in different regions differ widely. The text of Bengal, for example, is the longest while the text of South India is the shortest. The text of Madras written

[1] Translated from German by E. B. Eastwick.

in Telugu character comprises forty pages, the text of Bengal written in Bengali character comprises ninety pages, the text of Allahabad written in Devanagari script comprises fiifty pages and the text of Kashmir written in Sarada approaches very nearly the length of the Bengal text. Despite these differences some general agreement is, however, noticed in certain manuscripts, which has led European scholars to divide the manuscripts into four broad classes. They are :

    (i)   Manuscripts written in the Bengali character
    (ii)   Manuscripts written in the Devanagari character
    (iii) Manuscripts written in the Telugu character
    (iv) Manuscripts written in the Sarada character

These are respectively known as the Bengali recension, the Devanagri recension, the South-Indian recension and the Kashmiri recension. The term 'recension' need not cause any confusion because it simply means a critical revision of the text.

So far as the Bengali recension is concerned it was Pandit Iswar Chandra Vidyasagar who for the first time brought out an edition from as many as eight manuscripts. Later on Premchandra Tarkavagish brought out his edition under the supervision of Prof. E. B. Cowell. This is a specially valuable edition because it embodies the result of the co-operation of European research with the erudition and profundity of indigenous scholarship. Dr. Pischel supported this recension because this, in his view, was probably the most faithful to the original. His own critical edition also appeared very soon, probably in 1877. The Devanagari recension is very well represented. It was first edited by Bohtlingk in 1846 and later on by Prof. Monier-Williams in 1853. Prof. Monier-Williams prepared his edition from a large number of very trustworthy manuscripts including the Bengal text though he did not admit the readings of the Bengali manuscripts unless they were supported by the Devanagari. As an editor he exercised so much subtlety and judgment that his version of the text had become almost indispensable to all readers of the *Abhijnana-Sakuntalam.* Still later another edition which is considered to be the purer Devanagari text was brought out by the well known scholar Prof. P. N. Patankar in 1902. The South Indian recension with the gloss of Abhirama-Katayavema and others is also well known to scholars. So far as Kashmiri text in Sarada script is concerned it was first brought to light by Buhler and this text was reproduced in Roman script later on by Burkhard, perhaps in 1884. In recent times a new edition has been brought out by the

Mithila Institute, Darbhanga and its editor claims that this text represents a Maithili recension of the play.

But recensions are not an end in themselves ; they are only means to and end. They only present processes of corruption, interpolation and deviation from the poet's original. Really speaking the final text belongs to no particular recension. Keith, the great oriental scholar also supported the view when he said, "We must hold that neither recension is of conclusive value".[1] All that can, therefore, be said of these recensions is that when they are finally determined, the hunt after the manuscripts ceases. But that does not solve the problem of selecting the true text. On scrutiny into and comparison of the different recensions the editor will see that though the Kashmiri recension goes well with the Bengali in many places, there are some additional passages in the Kashmiri text. More over, there are many verses and passages which, though common to the Bengali and the Devanagari recensions, are not found in the Kashmiri. Besides, there are certain portions in the Kashmiri recension which do not come up to the standard of our poet. All these show that none of the recensions can claim any superior merit.

To determine a definite standard text of the play is undoubtedly a difficult task for which both scholarship and intellectual labour are required. To construct the true text the editor should collect, examine and compare the various readings carefully in order to ascertain which of them, if any, represents the poet's original. It is, therefore, necessary that he must approach his work at this stage without any bias or prejudice. He may seek the help of the perspiration brigade—the assistants in order to compare line by line, nay word by word, all the extant versions. While comparing the different recensions he will probably see that a large part of the text is common to all the recensions which can, therefore, be taken unhesitatingly as genuine. So far as separate readings are concerned he should accept only those which are consonant with stage directions and reject those which explicitly violate them. He should also reject such readings which are either defective or incongruous with the sense of the passage or have rivals in improved meaning. The verses which have been cited by the rhetoricians in their standard works on Poetics should however, be regarded as authentic. For the rest he will have to depend upon the context,

propriety, consideration of style and so on. While collating the different copies he will perhaps come across repetitions of some ideas, words and phrases which were favourite with the poet, and he can accept them as authentic. To be intimately acquainted with the poet's ideas and literary style, idioms and expressions he has also to do a good deal of reading. He must not only read other works of the poet but also the works of his supposed contemporaries. He must have also thorough knowledge of the history of the poet's time, of the customs and conventions, rites and rituals then prevailing. He should also try to make a comparative assessment of other literature in respect of dramatic and poetic achievement in Sanskrit.

As regards arrangement of *appratus criticus* the editor should give the textual variants in the Notes on the page in which the readings appear. Even if he introduces any minor change or corrects an obvious error, he should by all means account for it. In the case of difficult readings he must certainly suggest possible emendation but he must insert them in *footnotes*. He must always remember that his duty is to present the text as the poet wanted it to be read and not as how a particular recension has put it. On the whole he should not reject even a line without drawing the reader's attention to it nor should he introduce any adulteration in the text only to suit his own views of propriety and elegance.

From all this it is evident that to edit Kalidasa's *Abhijnana-Sakuntalam* or in fact, any of his classics one requires long suffering patience. As his function is not merely to suggest emendation but also to offer interpretation, he should overlook nothing as insignificant or trifling.

Reading List

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Williams, Monier. Ed. *Sakuntala by Kalidasa.* 1961.

BIBLIOGRAPHICAL DESCRIPTION

*"The separation of an author's work from his book, or the
dress in which his work is eventually clothed, accounts for
one kind of bibliography namely the description of the book
in such a way as to assist the textual or higher critic in the
solution of his problems".*   —J. D. Cowley

After a bibliographer examines a book and comes to know of its
identity, its contents and history, i.e., how it has been printed,
constructed and bound and of what materials it has been made, he
is to record the knowledge he thus obtains either for himself or
for others who have no easy access to the book. This is what goes
by the name of bibliographical description. A bibliographical
description is, therefore, nothing but the complete picture of a book
drawn in words and symbols, showing the relationship between the
making of the book and the transmission of the text. It is in the
words of J. D. Cowley "a description, reduced to a formula, of the
method of publication of a particular boon through the setting down
of the relevant details of format, typography, arrangement of
contents, etc." Indeed as soon as a book is properly analysed and
all its bibliographical problems are solved the description of the
resultant peculiarities becomes a natural corollary and a logical step.
Fredson Bowers calls it the true bibliography. A bibliography which
fails to give a definite account of a book and does not record every
known variant, issue, and state is at best a 'bibliographical catalogue'
according to him. It must clearly state which portion of the text is
a cancellans or an insert, which portion represents the latest
corrected state of the text and whether it was corrected by the author
himself or by the printer, and must also mention the correct dates
and order of various editions. A bibliography which fails to provide
such a description is really no better than a catalogue. Schneider
also practically says the same thing about it though he gives to it a
somewhat different name 'bibliophilic bibliography.' The full biblio-
graphical description, according to him, is primarily concerned with
rare and antiquarian items which often require to be so collated that

their identity in case of doubt may be satisfactorily established. Description in such cases should, therefore, be more detailed than is required for most contemporary works. Though descriptive bibliography is an outgrowth of the catalogue and though every catalogue entry is also a kind of description of the book concerned, the entry, if it is to serve the purpose of a description must be sufficient enough to identify the book. The mere mention of the title of a book with no corresponding bibliographical description of it serves no useful purpose. Though there are no standard rules for bibliographical description just as there are for entries in catalogue the compiler should, however, follow a consistently uniform principle while making the entries within a single bibliography and provide nothing but absolutely correct and accurate details about each item included.

Purpose of Bibliographical Description

The complete bibliographical description of a book is an invaluable tool for the textual study of the book. If if it properly analytical, it serves as a basis for textual and literary criticism as well as for bibliographical investigation at research level. It then becomes a sort of reference book capable of solving various problems faced by literary students and turns to be a literary history in itself. These apart, descriptive bibliography also serves other purposes. First, it helps librarians and book collectors to identify copies in their collection. Secondly, as it furnishes a detailed record of the physical characteristics of a book, it makes, as it were, an absent book present before the eyes of a reader and also provides the most dependable source of its identification. Lastly, by investigating into and recording the details of printing or publishing history of the book it provides not only the history of the book but also the literary history of the author. Hence a bibliographer who does not record or ignores to record in his description the existence of a cancel or an interpolated page, if there be any, may thus shut out information of great value from the scholars because such things may reveal on one hand the transformation of the author's thought into print and on the other their textual and physical relationship to other parts of the book. After all the basic function of bibliographical description is to present all the evidence concerning the authorship, composition date of printing and method of production of a book by making a thorough examination of it and hence it goes without saying that the making of such a bibliographical description can be under-

taken only by experts who have intellectual insight, research mind and adequate technical knowlege of making accurate entries of each item in a description. It is really no work of an amateur.

It is, however, needless to say that all books do not require to be described so elaborately. The degree of details of entry depends in fact upon the nature of the documents and the dates of their production. For example, the incunabula, i.e. books printed in the 15th century, the cradle period of printing require to be described more elaborately than books printed in the 17th and 18th centuries as also in modern times. It is simply impracticable and perhaps useless to describe all books of all periods in every detail of their materials, composition and construction and if any attempt is made in that direction, it may only lead to complication and confusion. It should, however, be borne in mind that the main purpose of a bibliographical description is to give as precise a record of a book as the occasion demands and since all occasions do not demand a detailed description of different parts or elements of a description it will be unwise to overload it with unnecessary details. In an art-book, for example, in which there are so many plates it is but natural that the art collation should be given more prominence than any other part of the description. In a book-seller's catalogue, on the other hand, items are described in a different manner. Here the items are described with the minimum of information about each item and yet in such a way that the buyer can identify a parti-cular item and may to some extent come to know of its value. The same book again may be described in different ways—briefly or elaborately as the case may require, in different kinds of biblio-graphy according to their varying purposes. Let us cite an instance. Caxton's first printing of *The Canterbury Tales* which is an important work on different counts—bibliographical, literary and historical has been listed in different bibliographies in different ways and never in an equally detailed manner. In the *Short Title Catalogue* it is just listed together with a host of other books printed up to 1640 and no details are given, because the purpose of this bibliography is merely to enable readers to locate books up to 1640. The same book has however, been described with more bibliographical details in Gordon Duff's *Fifteenth Century English Books* (1917) as well as in Seymour de Ricci's *A Census of Caxton* (1909) because the purpose of each of these bibliographies is more bibliographical than enumerative. All these clearly show that the amount and details of information

about each item to be provided in the list depend upon the function of the list and not always upon the nature and kind of the items listed.

Description of an Ideal Copy

A bibliography of an incunabula, however, requires an altogether different approach because here the main purpose is to set up a standard so that scholars and critics can check variation in specific copies. This standard, according to Fredson Bowers, is the 'ideal copy'. Throughout the 15th century when printing was at an experimental stage the books produced at this period used to vary very often from copy to copy in spite of the printers' best intention to bring them out all in uniform or identical form. Hence in a bibliography of such books it is the duty of the compiler to describe an 'ideal copy' of each of the books listed so that the scholars and critics can check against it all other copies of the book and come to know of the true text for making their critical evaluation. The 'ideal copy' may not always be an extant copy, but as a matter of rule it must be "an ideally perfect copy of the original issue"[1] as Fredson Bowers has said. To describe an 'ideal copy' what is therefore, most needed is multi-copy comparison in order to show the final form of the book in which the printer or publisher hoped and intended to bring it out.

Bibliographical Description : Minimum Entry

Bibliographical description is of three kinds : Minimum Entry, Short Standard Description and Full Standard Description. As regards minimum entry this normally provides the basic information without which the description serves no useful bibliographical purpose. Such an entry, therefore, requires such unavoidable minimum details as author's name, the title of the work, the printer's name, the place of publication or printing, the date of publication and if the book be anything but new to which no easy access is available, also its location. Minimum entry is sufficient for a great majority of modern books which do not require to be elaborately described because there is neither any doubt nor ambiguity about their texts, authorship and forms. The difference between short standard description and full standard description, however, lies more

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[1] *Principles of Bibliographical Description*, p. 113.

in degree of details than in kind. A specimen of a minimum entry is given below :

Saunders, Chauncey

An Introduction to research in English literary history ; with a chapter on research in folklore by Stith Thompson. New York, Macmillan Co., 1952.

vi p., 11., 423 p. illus., facsims (Part fold.), diagrs. 21 cm.
"Bibliographical references" : pp. 317-391 ;
specimen bibl. : pp. 393-406.

$ 5.50.

Short Standard Description

A bibliographical description, whether full or short, is said to be a standard one as and when it can be referred to at any time because of its permanent and authoritative character. The necessity of a short standard description arises only when a person who has no easy access to a book wants to know all about its physical and intellectual composition or about its perfection. Such kind of description is evidently required for antiquarian and rare books as also for first editions of works of certain celebrated authors which, because of their special nature, deserve to be a little more elaborately described than the great run of ordinary books of the present day. The elements of such a short standard description are as follows :

(a) *Heading* : This includes the author's name in full so that no confusion arises with regard to his identification.

(b) *Extract* : This includes the book's title, as it appears on the title-page, the edition number, if any and the names of the editor, translator etc. If, however, the names of the editor, translator, illustrator are not found on the title-page, they should be given in square brackets.

(c) *Collation* : This is an important part of the description in as much as it sets out by formula the physical make-up of the book. The items included in collation are format, the list of signature covering the entire volume, pagination and plates.

(d) *Imprint* : This comprises the name of the publisher, the place of publication and date. But in the case of a retrospective bibliography some more details may be added, as for example,

(i) The name of the printer and the place of printing

(ii) Any important fact relating to the origin of the book e.g., if the publication of the book was held up, if the printed edition was suppressed and so on.

(iii) A note on binding, MS notes and previous ownership etc., if they have got any special value. Such information, as it is evident, is not necessary for all books to be described.

Now, all these are sufficient for normal purposes. In the case of a subject bibliography, for example, the items listed above are really sufficient enough for the identification of the book as well as for the identification of its edition. But when the problem of transmission of text is important, in author bibliographies for example, full standard description should be the rule because a full author bibliography is the first prime source for the scholars working on the author's text. An example is given below to illustrate how such a standard bibliographical description is made.

GRAHAME, Kenneth. The WIND IN THE WILLOWS. The Wind in the Willows/ By KENNETH GRAHAME/ [Vignette]/ILLUSTRATIONS By ARTHUR RACKHAM/ INTRODUCTION By A. A. MILNE/METHUEN & CO. LTD. LONDON/36 ESSEX STREET, STRAND, W. C. 2.
$23\frac{1}{2} \times 15$ cm. Xii, 178 P. 11 coloured Plates including front head piece to each other. P [i] Half-title, Verso blank ; P. [iii] title, on verso : This book was issued on October 8th, 1908,/since when it has been reprinted in a variety of / editions, illustrated and unillustrated, 96 times / Ninety-seventh edition ; 1950/ Catalogue No. 5326/U/printed in Great Britain ; P. V-VIII, Introduction ; P. IX, contents, verso blank : P. XI-XII, Plates ; P. Xiii, fly-title, identical with half-title, verso blank ; P. 3-178, text ; 1 blank leaf at end.
Issued in dark green cloth lettered in gold on spine : THE WIND IN THE WILLOWS/Kenneth Grahame/Methuen. Cream end-papers ; top-edge green to match boards.
This is the first edition to be illustrated by Arthur Rackham although it was always the author's wish that he should do so.

The first paragraph in this example gives the heading. The second paragraph gives us an exact transcription of the title-page. The third paragraph gives us the most important part of the description namely the collation. The collation is given here in such great details that it leaves no room for confusion about its edition number. The fourth paragraph describes the physical characteristics of the book namely its look, covering material and its colour, gold tooling and end paper and the last provides us with other interesting information about the edition.

As regards 'heading' this differs in different kinds of bibliographies according to their varying purposes. In an author bibliography, for example, the title of the work forms the heading, but if several editions of the same work are described, the heading consists of the date of publication. In the bibliography of a locality it generally consists of the name of the place on which the bibliography has been compiled and in a subject bibliography it consists of the name of the subject. But whatever that may be, the heading is not always an essential part of the description, though in most bibliographies it forms the first part of each entry. As it is meant either for the purpose of arrangement or for the purpose of identification, this is not always necessary. The compiler of an author bibliography may therefore, easily omit the short title heading, if he so desires, because here the title of the work does not always require to be separately identified.

Full Standard Description

If a research scholar, however, wants to know if there are preliminaries, notes etc., elucidating the author's text or illustrating his reputation, if the owner of an imperfect copy wants to settle the arrangement of the engraved and type-set preliminary leaves, if he wants to know if a particular leaf is the last in the book or if it is followed by another gathering etc., it then becomes necessary to expand the entry still further. This is Full Standard Description.

The aim of full standard description is to describe books in detail so that scholars, librarians and collectors can compare and identify them. It may so happen that the work to be compared may be imperfect and may lack a few pages or even the title-page itself. In such cases the bibliographer will have to determine how much is missing from the work and how he will supply the same, how he will reconstruct the title-page and so on. It is of course true that a

great majority of books do not require to be described in so much detail since they are found more or less in perfect state. But in the case of works of antiquarian interest such as classics, travel books, early printed books, literary works of individual authors who have attained eminence. etc., **full standard description** becomes the rule. A full standard description is therefore, preceded by careful collation, checking of pagination or foliation, reading of the preface, dedicatory epistle, imprimatur and advertisements and a thorough study of the production processes of the whole work. This should, therefore, include the following items :

    (i)   Heading i.e., the short-title entry
   (ii)   Transcript of the title-page including imprint
  (iii)   Special and section titles
  (iv)   Colophon or explicit (Originally from 'Explicitum est' which means 'Is completed')
   (v)   Collation including format
  (vi)   Typographical note
 (vii)   List of contents
(viii)   Head-titles or running titles with variations
  (ix)   A selection of catchwords
   (x)   Notes

   (i) *Heading or the short-title entry.* Full standard description sometimes begins with the insertion of the short-title entry to help the scholar to find it out while turning over manuscript sheets or printed leaves of a special catalogue. But in the case of books which have clear title-pages, i.e., in the case of modern books it is better to head the extract from the title-page with the name of the author in capitals.

   (ii) *Title-page.* This should be an exact transcription of the title-page of the book in which roman type should be reproduced in roman, italic in italic, gothic in gothic, upper-case by upper-case, lower-case by lower-case and so on. So far as spellings and punctuation marks are concerned they should also follow those on the title-page. Line endings should, however, be indicated by vertical lines.

  (iii) *Special and Section titles.* If there are any special and section titles, they should be transcribed in full because they may bear some evidence of the earlier forms of the title-pages.

  (iv) *Colophon or explicit.* The colophon or concluding paragraph bears the printer's name and date. If there is no imprint in a

book, the appropriate informtion must be sought in the colophon. As imprint was however, unknown before the advent of the title-page, the name of the printer, place and date of printing used to appear at the end of the book, if they appeared at all. But in some 16th century books sometimes both imprint and colophon are found to occur and hence in such cases both should be fully transcribed because the colophon may give more information than the imprint or vice versa. At any rate, if only the colophon appears in a book, this should be fully transcribed.

(v) *Collation.* Next to the transcription of the title-page this is the most important part of the description. It describes by means of a formula the actual, physical make-up of the book. The first part of the collation paragraph is the format. As it is biblio-graphical format, it should not state merely the dimension and shape but also all other peculiarities about them. The format should be followed by the list of signatures which is clearly stated in some algebraic manner such as A-H^8 I-L^4 etc. The next item in the collation paragraph is the pagination. The pagination should be shown exactly. When it does not cover the whole of the prelimi-naries, it would be stated thus : PP. [6]+98+[1]. If there are irregularities or mis-numbering as it is often found in early books, they should also be listed here but if they are numerous, they should be stated in the Notes. The list of plates should also be set out so that one can easily understand the entire physical contents of the book. If details about them are necessary, they may be given in a separate paragraph. The collational formula appears like this in the case of a modern book :

Xi, 256 p. front., facsims., tables. 21 cm.

In a full standard description of a twentieth century book the collation formula is a little more elaborate e.g.

(81/32×513/32) : [unsigned : 1-36^{16}], 576 leaves, pp. [4] 1-1146 1147-1148, front., facsims., tables. 21 cm.

(vi) *Typographical note.* Sometimes this forms the last item of the collation paragraph. But in a full description this should be given in a separate paragraph. This should provide such information as the number of columns to a page, the number of lines to a page, the measurement of the title-page in millimetres, the size and style of type and so on. Typographical notes are often useful for distin-guishing variants as well as for establishing the date of printing.

But since they have no value to students of literature, they may better be given after the contents paragraph.

(vii) *List of contents.* Contents paragraph should clearly indicate the printed contents of the whole book. The items in it should be given in the order in which they appear. It should show the pages occupied by every chapter of the book and should also indicate clearly the preliminaries, appendices, indices, tables and blank leaves. Reference to the position of different listed items is made in the case of modern books by pages while in early books in which pagination was irregular it is done by signatures.

(viii) *Head-titles or running titles.* They are particularly useful since they may bear evidence of reprinting, cancel etc., in the text. If a book bears different running titles in its different sections it may undoubtedly be presumed that the book was printed simultaneously by different printers in different presses. All variations in such cases should be transcribed indicating their signature or page numbers.

(ix) *Catchwords.* They are useful in so far as they check the re-setting of type and other variations and thus help in attributing the imperfect copies to the proper edition. Hence a selection of catchwords should be given in a new paragraph together with the signatures or page numbers where they occur.

(x) *Notes.* This is the last paragraph of a full standard description. This may refer to known variants of the book or any other pertinent information about it. This may include any matter relating to the textual history of the book, its printing history if it has affected the text, a note on authorship if the author's name is unknown, relevant notes on paper and its watermark, especially of cancellans, inserts, single leaves and so on.

A specimen of a **Full Standard Description** of an Incunabula is given below to show how such an early printed work needs to be described.)

PLINY, HISTORIA NATURALIS, 1472.*

PLINIUS SECUNDUS (Gaius). Historia naturalis [edited by Johannes Andreæ, Bishop of Aleria, with prefatory epistle and notices by various writers] Venice : Nicholas Jenson 1472 2°

2° : [$1^{12}2^8$ $3-8^{10}$ 9^{12} $10-15^{10}$ 16^8 $17-27^{10}$ 28^6 $29-30^{10}$ $31-35^8$ 36^{10} 37^{12}], 358 leaves (ff. 1, 357, 358 blank), ff. 5^6-20^8 12 cols. (ms. signatures).

*This is taken from Appendix II (Sample Description) of Fredson Bower's Principles of Bibliographical Description.

(f. 355^a 1·8) CAII PLYNII SECVNDI NATVRALIS HISTO-RIAE LIBRI TR1-/CESIMI SEPTIMI ET VLTIMI FINIS IMPRESSI VENETIIS/PER NICOLAVM IENSON GALLI-CVM. M. cccc. LXXII./NICOLAO TRONO INCLYTO VENETIARVM DVCE.

f. 1$^{a \cdot b}$: blank. f. 2^a, 1.1 : CAIVS PLYNIVS MARCO SVO SALVTEM./ (p^3) Ergratum eft mihi : q tam diligenter libros auunuli mei lectitas : ut pre ones/ f. 2^b, 1.5 : ...uerum etiam ad fimile oliquid elaborandum proffunt aemulationis ftimulis excitare. Vale./SVETONII TRANQVILLI IN LIBRO DE VIRIS ILLVSTRIBVS./ (p^3) Lynius Secundus Nouocomēfis equeftribus militūs iduftrie functus : Procu-/[10 lines]/ cies continent titulorum./ CAIVS PLYNIVS TACITO SVO SALVTEM./ (p^3) Etis ut tibi auunculi mei exitum feribam : quo uerius tradere pofteris poffis./ f. 3^a. 1.35 : excerpes. Aliud eft. n. epiftolā : alind hiftoriā : alind amico : aliud öibus feribere. Vale./ ITEM TERTVLLIANI IN APOLOGETICO./ etc.

Without foliation, headlines, or catchwords ; signatures in ms. recorded in British Museum copy, BMC, v, 172, as follows : a^{12}b^8 c—h^{10}i^{12} k—p^{10} q^8 r—z^{10}s^{10} 9^{10} R^{10} aa^{10}, bb^6 cc—dd^{10} ee—ii^8 kk^{10} ll^{12}.

Single col. ff. 2^a—5^a, 21^a—356^a ; 2 cols. ff. 5^b—20^b. Soll. 248× 161 mm. 114R (f. 66^a MH). Facsimile : etc.

Each book begins with 12-line space ; letters in the preliminaries and the final letter begin with 3-line spaces ; elsewhere 2-line spaces begin paragraphs. Only 2-and 3-line spaces have l.c. directors. 4 pinholes per sheet. [description of watermarks]

Copies examined : ICN (4087), MH(F 3171. 1F) etc.

Held by : L. etc.

Hain 13089 ; BMC V, 172 *Census* (1940) p. 718.

The first paragraph in this description gives the heading i.e. the short title entry, the second an exact transcription of the title-page, the third the collation, the fourth the colophon, the fifth the list of contents of the book which being quite lengthy has not been fully recorded and the last typography.

Medium and Short Description & Standard Catalogue Entry

Now, whether the description should be short or medium depends upon the nature of the documents as well as upon the

purpose for which the bibliography is to be compiled. But whatever be the form of description, short or medium, it should always set forth the collation proper, though in modern books only pagination may be retained and the signature safely omitted. There is, however, little difference between short description and brief catalogue entry and hence it is not suitable for bibliographies. A standard catalogue entry, on the other hand, suffices the normal purpose of bibliography since it meets all the requirements viz., the author's name, the title of the book, the Publisher's name and date, format, pagination, illustration, plates and so on. If there is more than one volume, the pagination of each volume is also given in a note following the entry. In current bibliographies there is again the laudable practice of noting even the price of the book.

Reading List

Bowers, Fredson. *Principles of Bibliographical Description.* Princeton University Press, 1949. Reprinted by Russell and Russell of New York, 1962.

Bühler, Curt F., McManaway, James G. and Wroth, Lawrence C. *Standards of Bibliographical Description.* Philadelphia, University of Pennsylvania Press, 1949.

Cowley, J. D. *Bibliographical Description and Cataloguing.* Grafton, 1939. Chapters 4-8, 11.

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Mckerrow, Ronald B. *An Introduction to Bibliography for Literary Students.* Oxford, Clarendon Press, 1962. Part 2, Chapter 1.

Robinson, A. M. Lewin. *Systematic Bibliography.* Bombay, Asia Publishing House, 1966. Chapter 2.

Stokes, Roy. *Esdaile's Manual of Bibliography.* London, George Allen and Unwin, 1967. Chapter 10.

Stokes, Roy. *The Function of Bibliography.* London, André Deutsch, 1969. Chapter 4.

CHAPTER XIII

COPYRIGHT—ITS ORIGIN AND DEVELOPMENT

"This mournful truth is ev'rywhere confessed,
Slow rises worth by poverty depressed."
—Dr Samuel Johnson

"No man but a blockhead ever wrote except for money", said Dr Johnson and like all his aphorisms this is also true in the majority of cases. It is of course true that great poets, writers and thinkers have written and still write under inspiration, but they have also in their subconscious mind a desire that their literary and artistic creations should fetch them much so that they can keep their body and soul together. Fortunately for literary men, artists and sculptors, some people in almost every civilized society soon came to realise the predicament in which these great men had to work and tried, as such, to reward them for their industry by framing laws in order to encourage the production of arts and crafts and the writing of books of great worth and merit which, in the words of Stefan Zweig, "the alpha and omega of any knowledge". It is this device to give the authors and artists some security of their works that is known as copyright. Copyright is indeed the exclusive right given by law for a specified period of time to an author, composer or artist or his assignee to print, publish and sell copies of his original work.

Copyright Law in China

But this right to one's intellectual or artistic creation now known as copyright was not recognized all at once, certainly not from the time when literature began to be produced. For quite a long period of time in the remote past some poets, writers and artists died in wretched poverty even though their literary and artistic creations earned world-wide applause. Great works of literature and art were also sometimes freely pirated and the artists and literary men felt helpless, there being no law in those days to protect their rights. In the Orient, for example, there was no law for a long period of time to safeguard the interests of literary artists like poets, composers and authors. Even no less a philosopher and religious teacher like Confucius was accused of recompiling from ancient manuscripts.

It is said that of the six classics known to have been written by him one was his own work, the rest being mere compilations from works written by early writers. Debates had, in fact, been going on for long whether an author should enjoy the monopoly right upon the body of knowledge embodied in his works just as he does upon his property like land and livestock or whether the knowledge contained in his works should be in the public domain. Even though printing with movable type was invented in China nearly four hundred years before its introduction by Gutenberg in Germany in 1454, there was no law in the country till 1928 to protect the rights of the authors over their literary property. As printing with movable type encouraged the multiplication of copies of important works at a faster pace and at more reduced prices, Chinese language books began to be freely pirated on a wide scale by others. In order to call a halt to such a nefarious practice—to stop such unauthorised reproduction of Chinese language books that the first domestic copyright law was enacted in China in 1928.

Copyright Law in Europe

As regards attempts at protecting the interests of the authors, artists etc. in Europe no definite date can yet be ascertained prior to the 16th century. There is, however, an interesting anecdote about how the right of an author to his intellectual work was first recognized under strange circumstances in Ireland by a royal decree sometime in the 6th century A.D. One St Columba, a young scholar once went to see his old master, Abbot Finnian. During his stay in his master's place he stealthily entered the church every night in order to make a copy of his master's *Psalter*. One night when he was deeply engaged in copying it he was detected and brought before the Abbot who asked him to deliver the copy immediately which he refused to do. When this matter was reported to King Diarmid at Tara for his adjudication, the king pronounced his famous judgment in favour of the old abbot, Finnian, saying, "To every cow her calf, therefore, to every author his copy." There is however, no authentic record to prove that there was any law anywhere in Europe affording a modicum of protection to writers and composers before the 16th century.

Copyright Law in England

In England there had been something like the protection of copyright for at least a century and a half before the enactment of

the first Copyright Act in 1709. Printing was also the king's prerogative in those days. Richard Pynson as the royal printer produced the first English book in roman type in 1518. He also got the licence for printing certain other books as the king's printer. The king or the queen, as the case might be, thus granted at times the monopoly right of printing certain classes of books for a certain period of time to certain printers. Queen Elizabeth, for example, granted in 1597 the privilege of printing certain school books to her footman for fourteen years. Even after the Act of Anne was passed in 1709 this practice continued. Even today the Queen's printers are, by Letters Patent, empowered to print certain documents like Acts of Parliament, Bibles, Prayer Books etc. The Universities of Oxford and Cambridge also enjoy the right "to print all manner of books" on the strength of early royal charters.

In 1557 the Company of Stationers was formed by a royal charter. Its purpose was not to protect the authors and their copyright, but to prevent the publication of seditious books and books containing heresy against the Catholic religion. None but the members of the Company could, as such, legally print books. The Stationers Company maintained a register of books printed by its members to whom the books were sold by their authors. The register showed which book was printed by a particular member printer who had, therefore, the absolute right of printing it. It served two purposes. It prevented the possibility of the reprinting of a book by either another printer-member of the Company or by an outside piratical printer—because the company was empowered to stop it either by imposing fines or by destroying the press of the printer who infringed the right of the true proprietor. The other important purpose that it served was that it preserved for the British reading public an almost complete list of the printed books submitted by their owners since 1557 which serves to a great extent the purposes of British national bibliography prior to its formal appearance in 1950. It is from this register that we come to know that the Tonsons were the proprietors of Shakespeare's plays and of Milton's *Paradise Lost*. This suggests that the authors in those days had perpetual copyright in their works and if they sold their right to their printers or book-sellers the latter had, by assignment, possessed the same right in them.

But as some printers frequently took the liberty of printing books without the consent of their authors or their owners to the detriment of the interest of the authors or proprietors and their families the

first Copyright Act was passed in 1709 to save the authors or their assignees from financial ruin. According to the Act the author of a book already printed or the printer who had bought it from him should have the sole right of printing it for a term of 21 years and no longer. If, however, a book had not been published the author would enjoy the sole right of printing it for a term for 14 years from its publication and no longer. Any violation of these rights, the Act further says, would lead to forfeiture of the books and make the offender pay certain penalty. It also provided for the delivery of copies free of cost to certain libraries like those of the Universities of Oxford, Cambridge, Aberdeen etc.

In 1814 the Copyright Act of 1709 was amended to give the author the copyright of his work for a period of 28 years and if he were living at the end of the period, for the term of his life. Attempts at increasing the period of copyright in the interest of the author were being made since 1837, but they bore no fruit until 1842. The Copyright Act of 1842 was the next milestone. Moved by no less a historian and scholar than Macaulay and seconded by the great statesman Sir Robert Peel, the Act extended the period of copyright to 42 years from the date of publication or until seven years after the author's death, whichever was longer. The Act, howevere, empowered the Privy Council to authorise the reprinting of a work after the author's death if the owner of the copyright refused to permit its reprinting. The right of an author to his literary property was thus firmly and finally recognized by law beyond any shadow of doubt. Even this act was replaced by the Act of 1911 which increased the period of copyright to the life of an author and fifty years after his death. In the case of a posthumous work copyright would, however, subsist for a period of fifty years from its publication. The Act also specifically mentioned what would constitute infringement. To reproduce a work or any substantial part of it in any material form without the consent of the copyright owner would, according to the Act, be an act of infringement. But if a person made a reasonable extract from a published work for the purpose of research, private study or recitation in public, he would not be guilty of infringing the right. The Act also introduced a novelty. It permitted one to reproduce a book after the expiry of 25 years from the author's death provided one informed the copyright owner of it in time and agreed to pay him royalty at the rate of 10 per cent.

The next important milestone in the history of British copyright legislation was the Copyright Act of 1956. The new act widened the scope of reproduction of articles in journals aud periodicals and parts of certain published works to some libraries in order to make research and private study easier. The Act also states that in the case of a manuscript of an unpublished work which has been lying so for more than fifty years from the author's death or for more than 100 years from the time it was written one can publish it for the sake of study and research without depriving the copyright owner of his due right in it. If an author, however, bequeaths a person his unpublished work by will, the latter becomes automatically its copyright owner. The act also empowers a publisher to publish any important historical or literary document the identity of the copyright owner of which is unknown provided he gives due notice of it in the proper form prescribed by *The Copyright Regulations*, 1957. If the copyright owner is thus traced or revealed, his consent will be necessary for its publication.

As regards other provisions of the new act they were introduced to fit them with modern conditions and to bring them in line with the requirements of two new international conventions : Brussels Convention of 1948 and the Universal Copyright Convention of 1952.

International Copyright :

Britain has been giving foreign authors since 1844 the same copyright to their works as she has been giving to British subjects provided the countries to which these foreign authors belonged gave similar protection to British authors. Complications in this regard gradually began to manifest themselves. Books in the English language began to be reproduced piratically in many countries of Europe and North America which ultimately led to the creation of the *Berne Copyright Convention in 1816*. It provided for a uniform international copyright system. Most of the States "with any pretension to civilization and culture" with the exception of the United States of America joined the Convention and became parties to it. The United States could not accept the recommendations of the Berne Convention on two grounds : first, the U S ensured protection of the rights of an author for a maximum period of 56 years where as the Berne Convention guaranteed protection for the life of the author plus fifty years after his death and secondly, the U S Law that the works of US origin should be printed in the

United States was not acceptable to the Berne Convention. The Berne Convention was further revised by the *Brussels Convention of 1948*. Most civilized States except the U S became signatories to it. Restrictions prevailing so long in the United States were, however, gradually released thus helping that country to cooperate with other countries and consequently the *Universal Copyright Convention of 1952*, a product of the UNESCO was passed involving all the States including the US which joined in it in 1955. The Universal Copyright Convention accepted in principle the protection of copyright of all authors, foreign or native, through all the contracting States. *The Universal Copyright Convention* brought many a State like the US in its fold thus establishing real international relations in the field of publication and protection of authors' rights to their literary property in all the countries that have joined in the Convention. The USSR is however, a notable exception that has joined in no international copyright treaty so far. The countries that are signatories to the Berne Convention and the Universal Copyright Convention are pledged to honour this right. Besides books, drawings, paintings, photographs, sculpture, musical composition, broadcasts and film—all such things may be protected by copyright.

Situations in the mean time became further complicated with the emergence of the developing countries. The developing countries demanded that the developed countries should share their publishing and related know-how with the developing countries which required them for teaching, research and economic development. Unfortunately the developed countries did not for long fully recognize their moral responsibility of sharing their knowledge with the Third World countries by supplying books to them at reduced prices which the developing countries could afford to pay.

They had been also very reluctant to grant the developing countries the right to translate or reprint them at reasonable rates. The copyright relationship between the developed and the developing countries thus remained strained. The problem was, however, resolved in 1971 when both UCC and Berne were revised. This is what goes by the name of *Paris Revisions* of 1971. This has made some realistic concessions to the developing countries with regard to reproduction and translation of materials having great educational value. The government of a developing country, according to Paris Revisions, can now grant licence to a local publisher to reprint a book by a foreign author at a considerably reduced price

if it has not been published in the concerned country at the expiration of a certain time period. The publishers should, however, be prepared to pay the foreign author royalty at a rate comparable to that paid to a native author, and in local currency if the country is lacking hard currency. This has thus met the needs of the developing countries without damaging the legitimate copyright interests of foreign authors.

To ease the situation further *Copyright Clearing Centres* have been established in different developed countries like the United States, Britain etc. which have been arranging for the granting of translation and reprint rights to publishers and governments in the developing countries like India, Pakistan, the Philippines and so on. USESCO has also established an *International Copyright Cleaning Centre* the function of which is to coordinate the efforts of the different Centres already established in several countries as also to directly help the developing countries in obtaining this right. Despite all these facilities, copyright problem is likely to persist unless both the developed and developing countries conduct themselves morally, honestly and uprightly. Though food for the mind is as important to everyone as food for his body, the creator of the food for the mind should not be deprived of his legitimate dues. If a farmer cannot be deprived of the crop he grows why should the creator of a noble thing like a book be deprived of its yield ? Indeed literary property should by no means be treated differently from other kinds of property like land and livestock, houses, furniture, motor car, jewellery and so on. More over, most of the authors except a very few cannot live even moderately on the fruit of their labour and hence they are forced to take to other means of livelihood. This is by no means desirable in the interest of the growth of literature and learning. If a great writer or a great artist can live on the fruit of his labour in peace and comfort, he is likely to give to the world still greater and more creative works of art and thus enrich both national and world literatures and enlighten human mind everywhere.

Copyright Law in India

In India the story of the copyright law unlike that in the western world is of comparatively recent times. The great Indian poets, minstrels, writers, composers and artists did not expect any monetary benefits from the sale of their works. The great ones among them

either adorned the courts of kings and princes as salaried courtiers or received patronage in various forms from wealthy patrons of learning. Even those who were not so great had not to worry much for their living because they used to receive donations offered to them out of love and regards by their listeners. At any rate they never bothered for monetary gains. All that they desired was fame and nothing gladdened their heart so much as the public recitals of their poems or stories.

But the introduction of printing with movable type in this country brought about a great change in the attitude of literary men. As great works of literature and learning began to be turned out in large numbers from the presses and sold on a large scale the authors became conscious of their rights. They felt that as the writing of a creative piece of literature, be it a collection of poems or a drama or a novel etc., required both special gifts and hard intellectual work, they should by no means be deprived of the fruit of their labour. If a farmer could get a share of the crop he produced or a fruit-grower a share of the fruit he grew why should an author, they argued, be denied a share of the profit his book or books would earn? Apart from all these, as printing had also led to the rise of a 'professional' class of writers who lived by their pen, they felt they would be financially ruined if they were denied the right to their literary property. There was also some consensus in the literary circle as also among men in authority in those days that unless the authors were paid their legitimate dues to give them impetus there would be no further production of true works of literature, art and learning. It was to ensure better living for the Indian authors, artists, composers etc. as well as to prevent literary piracy of their works that the first Indian copyright Act was passed in the British Parliament in 1911 and given effect to in 1914. The copyright of 1914 granted copyright to an author for the whole of his life and fifty years after his death. It also provided various other protections and facilities to the authors, composers, etc.

The provisions of the copyright Act of 1914 were again modified after independence and the copyright Act which is in force even today was passed in the Indian Parliament in 1957. This law aims at preventing the copying of literary, artistic and musical works by fraudulent people and offers protection to all original works. But it offers protection only to original works and not to ideas and plots. "Protection is afforded as soon as the page of manuscript is written,

the sketch is drawn, or the melody is composed." That is to say, the idea or theme or plot can claim protection only when it is reduced into a concrete form. If, however, the idea or plot be expressed or reproduced in a different form and in different language, that does not constitute an infringement of copyright. Really speaking, "An original writer" as a great author has said, "is not one who imitates nobody, but one whom nodody can imitate." A mere copier, it is needless to say, can never produce anything great. Even with regard to form the copyright law "does not give a monopoly since it is directed to preventing copying and not to giving an absolute title to any particular form of words or of artistic production". It is because of this that some Indian film producers have been producing films based on ideas, plots and incidents freely borrowed from successful Hollywood films and films produced in other countries like England, Italy, France and Germany. This is plagiarism, no doubt, born of poverty of intellect, but this is no violation of copyright law.

Another important feature of the Act is that an author has every right to express his original idea or theme in another warp. He can, for example, transform a drama into a novel, a novel into a short story and so on or can even write a text book on the lines of an earlier book for a different class of students provided he has not surrendered this right to the publisher while signing a contract with him. Unfortunately some publishers often include in their contracts with the authors a clause that authors shall not write any other book on the lines which may hamper the sale of the book they have published earlier.

Again, in India if an author or a publisher wants to register a work with the Registrar of Copyrights who maintains a register for that purpose, he can certainly do so in order to prove the authenticity of his work. The copyright register gives the following information about each book reported to the copyright Registrar :

(a) Name and place of residence of the author
(b) Title of the book
(c) Name of the publisher and the place of publication
(d) Name and place of the copyright owner or his assignee.

But the registration of a book does not confer on the author any right ; it merely shows the evidence of the contents of the book in which copyright is claimed. The right comes automatically to the

author or artist as soon as a book is written or music composed or picture drawn. Though the authors do not normally bother much about registration of works, the publishers may do so and hence the authors should be alert lest some unscrupulous publishers get their names registered behind their back as owners of copyright of the works they have published.

In accordance with the Copyright Act of 1957 a copyright office and a Copyright Board were set up in New Delhi under the auspices of the Govt. of India, of which the copyright Board serves as a Civil Court with the power of adjudicating disputes arising out of claims and counter claims. An author may seek relief from the Board in respect of infringement of his work, which, according to the Act, is punishable with imprisonment or fine or both. The Copyright Board serves as a civil court and its judgment can be challenged only in the High Court of the area and in no other lower court. The Act also provides for the seizure, without warrant, of all the infringing copies of the book by an officer not below the rank of a sub-inspector. As regards the duration of copyright laid down in the Act an author or his assignee shall enjoy it for the whole of his life and his legal heirs shall be entitled to it for a further term of fifty years from the beginning of the calendar year following the year the author dies. If a book be not published during the life-time of the author, its copyright will extend to fifty years after the calendar year in which it is published.

But the provisions of the copyright Act of 1957 could not fully satisfiy the authors who, therefore, wanted a better deal and greater protection of their rights. The Authors' Guild of India took up the matter and suggested some amendments to the Act for the benefit of the authors. The Guild demanded that the royalties due to an author should be paid by a specified date and that non-payment or delayed payment of royalties should entitle an author to withdraw the book from the publisher and to move the Copyright Board for the realisation of their outstanding dues. The Guild also suggested that every publisher should be bound by law to state the number of copies he proposes to print and that he must give to the author a copy of the 'print order' he has issued to the printer for the printing of the book. The authors should also be given some more subsidiary rights than have been provided in the Act so that their works may not be freely adapted to other literary forms by others. All these

have, in the Guild's opinion, become necessary in view of the growing rise in the cases of infringement and various other offences relating to copyright both within and without the country. Care should also be taken for incorporating the provisions of the two International Conventions : the Berne Convention and the Universal Copyright Convention which came into force after July, 1971.

From the above it is evident that there are some weaknesses in the Indian Cophright Law which permits uncontrolled exploitation of the authors, poets, composers and artists many of whom are downtrodden. In 1977 the Performing Rights Society tried to convince the Supreme Court that the copyright of a composer and a lyrical writer should go to them and not to the producer of the films, but to no effect. The Supreme Court ruled that the copyright of the sound track, unless otherwise mentioned, belonged to the producer of the film for all time. It is really a pity that the producer usurps all the rights of the composer by giving them a single down payment. Truly speaking, if the artistic wealth and intellectual resources of the country are to be preserved and encouraged, the rights of the great poets, authors and musicians should be protected at all costs. It is, therefore, the duty of the Government to protect the right of this category now left out in the cold.

Copyright Libraries

A copyrtght library is a library that is instituted by certain legislative acts in a country. The National Library in our country is authorised to be a copyright library as in England it is the British Museum and in the United States the Library of Congress. A copyright library according to the Act or Acts prevailing in a country, is entitled to receive at least one copy of each publication brought out in that country. The registration of each book or periodical or newspaper in the copyright library or libraries is required for twofold purposes : for gauging the literary output of the country as also for the compilation of National Bibliographies.

The Press and Registration of Books Acts, 1867 and its Implication

There is, however, no evidence of the existence of any copyright library in ancient or medieval India, nor do we come to know of the existence of any such library even in the early days of British rule in India. It was only when the *Press and Registration of Books*

Act was passed in 1867 for British India that it indirectly helped some libraries to get some copies of books free of cost and maintain a continuous catalogue of early printed books in the country. But this Act was passed with no object of encouraging the growth of literature and forming copyright libraries. Its sole object was to know the nature of publications in British India, to control the press and to prevent incidents like the Sepoy Mutiny and the like. In terms of this Act the publisher or printer of every book or newspaper was to send a copy of the book or newspaper to the Secretary of State for India, another copy to the Governor-General in Council and still another to the Local Government. The copy meant for the secretary of State for India was deposited in the India Office Library or the White Hall Library which was stationed in the office of the Secretary of State for India. The copy sent to the Governor-General in Council was disposed of as the Governor-General in Council directed from time to time and the third copy was disposed of as the Local Government from time to time desired. Though the Act was thus meant for regulating printing by enforcing compulsory registration of each title, it had, however, indirectly helped the cause of preservation of copies of early printed books in British India. This was the practice in this country before the attainment of freedom. In accordance with this Act all District Magistrates received copies of books etc. from the presses under their jurisdiction and sent them to the Registrar of Publications in the Provincial capital. After registering the books, newspapers etc. in the official list of publications the Registrar used to send them to the Government which, after proper scrutiny, disposed of one copy to the-then Imperial Library in Calcutta and another to the provincial library or to any other library. There was thus no uniform procedure for preservation of copies of books for posterity. It is only for this that most of the early printed books are not to be found in any one library in India. They are more or less systematically preserved in the British Museum which was the de facto copyright library for India in those days. The India Office Library also possesses some of these early printed valuable and rare records.

The Delivery of Books and Newspapers (Public Libraries) Act and Its Impact

But the situation had changed since August 1947 when India emerged from colonial rule and became an independent republic.

Since independence no Indian publications have been deposited in the British Museum or in any other library in the United kingdom under the provision of the Copyright Act. Though the Press and Registration of Books Act is still in force, it has lost its sting. Soon the attention of the National Government in Delhi was drawn to this stalemate which, it felt, could not be allowed to continue. In 1954 the Indian Parliament therefore passed a law known as the Delivery of Books and Newspapers Act which was further amended as the Delivery of Books and Newspapers (Public Libraries) Amendment Act, 1956 to include serials as well. The Act extends to the whole of India except the State of Jammu and Kashmir. "Subject to any rules that may be made under this Act but without prejudice to the provisions contained in section 9 of the Press and Registration of Books Act, 1867" the publisher of every book, newspaper or serial must deliver at his own expense a copy of the book to each of the following libraries within thirty days from the date of its publication.

1. The National Library, Calcutta
2. The Connemera Public Library, Madras.
3. The Central Library, Town Hall, Bombay.
4. The Delhi Public Library.

The copy to be delivered to the National Library, Calcutta shall be the best of its kind and the copies to be delivered to the other three public Libraries "shall be on paper in which the largest number of copies of the book are printed for sale and in the like condition as the books prepared for sale". No publisher shall however, have to deposit any subsequent edition of a book in which no additions or alterations have been made if a copy of the first or some preceding edition has already been delivered under the Act to each of the libraries mentioned above. The Act enjoins on the concerned library that any book, newspaper or periodical received by it should be duly receipted.

There is also provision in the Act of penalty for the defaulting publisher. A publisher who either fails or refuses to deliver a copy of his publication may be sued in a court not lower than that of a first class Magistrate by an officer empowered to do so by the Central Government and the fine may extend to fifty rupees which, when realised, shall be paid by way of compensation to the Public Library to which the book or the serial or the newspaper ought to have been

delivered. The Act also applies to books, periodicals etc. brought out by the Government or under the authority of the Government.

The Role of Copyright Libraries

From the above it is evident that though we have now four copyright libraries in the country, the task of compiling a comprehensive national bibliography of all Indian books and others published in English as also in thirteen major Indian languages recognized by the constitution has been entrusted to the Central Reference Library now stationed at the National Library, Calcutta. This is a laudable venture in view of the fact that we had no such regular, consistent bibliographical record of Indian Language and other books published in India before independence. If we are to know anything about them or to consult them we are to take the help of the British Museum and its catalogue which holds partially, if not fully, a record of early Indian printed materials.

The National Bibliography of India is of great use to Indian scholars and literary men because they can, through it, come to know of all the books and periodicals written in their fields of study in different Indian languages including English and thereby judge for themselves if we are advancing or receding culturally and intellectually. Indeed there is no better standard for measuring the literary, intellectual and cultural progress or regress of a country than its national bibliography.

As to the role of the copyright libraries in enhancing the progress of research and intellectual and cultural advancement it can hardly be overemphasised. By receiving, under the Delivery of Books and Newspapers (Public Libraries) Act, books, newspapers and periodicals of all kinds published in the country and by holding them in a systematic manner in their stocks they are serving not only today's readers but will also serve future generations of readers. Indeed they are holding for the present generation as well as for posterity a rich national literature which helps the former to know the country and its people and the latter to judge our achievements in different fields of national life and carry them further. Besides the National Library which is the greatest depository of literary wealth of the nation, the other three Copyright Libraries conveniently situated as they are in three different parts of the country, are in a better position to serve national literature varied in form, contents, spirit and language, to scholars, literary men and various other readers in respective regions. Truly speaking,

there is no better national agency or institution than these to help research particularly in various Indian subjects, to make the people of different regions understand one another through their works, to make them feel the essential unity underlying various diversities and thus to make a strong and united India.

Copyright vs Patent

Though both copyrights and patents are forms of legal protection of some rights they are fundamentally different in character. Copyright offers protection to works of a writer, composer, printer or some creative individual who has created them independently and shown some measure of originality, but patent offers protection to inventions which are absolutely new and beyond the ability of a skilled worker, mechanic, craftsman or even a specialist in the field. Secondly, while a literary or artistic work which is original in both exposition and expression is copyrighted even if a similar work is already in existence, the owner of a valid patent enjoys monopoly rights over his invention. That is to say, the owner of a copyright cannot prevent another from bringing out similar work if it is written in different language or expressed in a different form where as the owner of a patent can prevent everyone—even an inventor who made the same invention independently afterwards—from using his invention. Thirdly, while permission from the copyright owner can be sought and obtained for reproducing some portion from his work, the question of asking for permission of the owner of a valid patent does not arise. Lastly, while a patent is issued by the government to an inventor to make or use a particular invention without competition by other users of the same thing, copyright, though also a privilege granted by law to an author or artist, does not preclude the possibility of the appearance of a nearly similar work of literature or art in print. It is only when a person reproduces the work of an author in toto or even a substantial or minor portion of it without prior permission of the copyright owner that he infringes upon the latter's rights or literary property. Plagiarism of any kind, that is, stealing of ideas and words and phrases verbatim from another's work and passing them off as his own is punishable by law. An owner of copyright thus enjoys rights only against those who reproduce his work or works for their monetary or other benefits without his permission. It should, however, be borne in mind that a plot or story cannot be protected in copyright. It is only the creative

imagination or artistic skill that can only become a matter of copyright.

Trademark—Its Difference from Copyright and Patent

Trade mark should not be confused with Copyright and Patent. Trade mark is a symbol or device or design or word or letter legally registered with the government by a manufacturer or dealer to distinguish a product or products from those of competitors. Like copyright and Patent it is also protected by law. There is, however, a little difference between the three. While copyright and Patent ensure legal protection to creative work like a work of literature or art and inventive discovery like some medicine, machine etc. respectively, trade mark ensures protection to a product or a line of goods as well as helps the public to identify the product or products with a particular manufacturer or dealer.

Reading List

Ball, Horace G. The Law of Copyright and Literary Property, 1944.

Biggs, Wm. The Law of International Copyright, 1906.

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Bogsch, Arpad L. The Law of Copyright under the Universal Convention, 3rd rev. ed., 1968.

Delivery of Books and Newspapers (Public Libraries) Act, 1954.

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Khosla, G.D. Copyright, World Publishing in the Eighties : A report on an International Seminar organised by National Book Trust, India, 1976.

Mackinnon, Frank. Notes on the History of English Copyright— The Oxford Companion To English Literature, Appendix II 1967.

Patterson, Lyman Ray. Copyright in Historical Perspective, 1968.

Well, Arthur W. American Copyright Law, 1917.

Wittenberg, Philip. The Protection of Literary Property, 1968.

SYSTEMATIC BIBLIOGRAPHY : TYPES AND EXAMPLES

"Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it."

—Dr Johnson

Bibliography as a subject has three principal branches namely analytical, historical and systematic or enumerative of which the last named is the true bibliography, to the average readers. Though the first two are also useful and important, they are not as useful and important as systematic bibliography to a great majority of modern readers, for while the first two relate to books, rare and antiquarian, systematic bibliography principally relates to contemporary literature which generally concerns the average readers. Then again, while analytical and historical bibliography are primarily concerned with higher form of intellectual activity and advanced research into old and rare records, systematic bibliography is concerned with all levels of intellectual activity, high and low. The importance of systematic bibliography is great even with regard to old and rare records, for while analytical as well as historical bibliography helps the literary scholars to establish the authenticity of their texts or the chronological order of the different editions of works which present some doubt or confusion about their texts or edition number, the results of their search will remain outside the pale of other scholars unless they are recorded and systematically arranged according to some recognised principle. It is the business of systematic bibliography to undertake the work of compilation of the lists of all written and printed records whether they are old or new, antiquarian or modern, on a given subject. In fact a bibliography is not complete or fully useful unless it reveals the whole field of knowledge on a given subject.

Systematic bibliography has been variously defined by different authorities on the subject. George Schneider, for example, has defined it in his famous work *Handbuch der Bibliographie* as the "preparation of lists of books". This definition, though it very

nearly approaches the subject, is inadequate in the sense that it suggests no principle or order in which the lists are to be prepared nor does it suggest how materials are to be selected and how the selected materials are to be described. If his definition be accepted as the standard one, then any list of authors and titles brought out by any publisher or book-seller for purposes of advertisement becomes a bibliography and so too is a library catalogue, though neither of them is a bibliography in the true sense of the term. Hume has again defined it as "the science of the organisation of recorded knowledge". This is also something inexact and indefinite since it says nothing beyond organisation of recorded knowledge. Other definitions like the study of the 'lists of books', "the study of lists of literature" etc., are not also very clear as to how the lists are to be prepared. Besterman has called it a list of books arranged according to some permanent principle and in the words of Esdaile this is based on "assembling the entries, simple or elaborate as the case may require, into logical and useful arrangements for reference and study". Both the definitions, it cannot be denied, hit very near the mark, though they too are by no means absolutely perfect for while Besterman includes only books and no other type of material. Esdaile emphasises only the principle of arrangement. A still better definition has been given by Louis Shores in recent times. It is in his view, "a list of written, printed or otherwise produced records of civilisation ; which may include books, serials, pictures, maps, films, recordings, museum objects, manuscripts and any other media of communication." This definition too keeps reticent so far as the method of arrangement is concerned and hence it is not also very comprehensive. But a more satisfactory definition of systematic bibliography has been given in recent times by V. W. Clapp in the *UNESCO/Library of Congress bibliographical survey* in which he has defined it as "the technique of systematically producing descriptive lists of written or published records". This is undoubtedly a more perfect definition in as much as it emphasises the need of both system and description as well as the inclusion of materials of all kinds. Lastly, we may also refer to the definition given by Mile Malcles of the Sorbonne in her work *Les sources du travail bibliographique.* Systematic or enumerative bibliography according to her is based on "research, identification, description and classification of documents, with a view to organising the services or constructing the tools destined to facilitate intellectual work." This suggests that the

documents whatever be their form viz., books, periodicals and any other media of communication should first be found out by research and then properly identified, described and arranged in some classified order. This definition as has been propounded by Madame Malcles reminds us of a similar analysis made nearly forty-two years ago by a famous British bibliographer Sir Stephen Gaselee. Systematic bibliography, in his opinion, is based on "collection, enumeration, description. analysis and conclusion"[1] of which the first three are simply matters of technique while the remaining two i.e., analysis and conclusion are the concern of the scholars and as such feature only in descriptive bibliography. Lastly we may refer to the definition given by A.M.L. Robinson. The aim of systematic bibliography, according to him, is to assist an enquirer in discovering the existence or determining the identity of books or other documentary materials which may be of some interest to him. This definition differs from many others in that it emphasises the user's requirement and states that bibliography is to meet the user's interests. Robinson also includes all materials whether they are in the form of books or any other form, but he is silent about the method of arrangement.

From the foregoing exposition of the meaning and connotation of systematic or enumerative bibliography it now transpires that it is neither mere collection nor mere enumeration, nor bare description of the materials selected, nor their analysis, but a combination of all the four varieties of work together with something more. This 'something more' includes location and annotation. Really speaking as the aim of bibliography is to unfold the whole field of knowledge for the benefit of intellectual workers; it is the duty of the bibliographer not only to collect, preserve and enumerate and describe them, but also to classify, annotate and locate them. It is not enough for a bibliographer merely to enumerate what have been written on the subject ; he should also state where they are available. Annotation is equally important and perhaps more useful if it is drawn from the bibliographer's personal knowledge of the subject or from standard reviews because we can sometimes learn more of an item from a standard review than we can obtain even by personal inspection of the document. All these clearly indicate that systematic bibliography is not a lower level of intellectual activity, as some people say, nor is it 'mere drudgery and prostitution of learning' as Dr. Greg would have

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[1] "The aim of Bibliography", *The Library*, 4th series 13, 1932; pp. 225-228.

us believe. It should, however, be borne in mind that as the purpose
of bibliography is to help scholars and researchers to locate the copy
of a book which they have come across in a list or of which they
have heard, to determine the identity of books or documents and
then to describe them both bibliographically and textually so that
nothing about them is left obscure to or shut out from the enquirers, it
should not only provide for each item in the list information regard-
ing authorship, title, edition, imprint, enumeration, annotation and
location but should also arrange all books, manuscripts and other
documents included in the list in such a systematic and logical way
that it serves the purposes of information to the enquirers. To define
more precisely, systematic bibliography is a list of different reading
materials whether they are published in book form or in any other
form, prepared by highlighting certain identifiable features of the
materials and by indicating their sources or location, in a useful
arrangement so as to meet the requirements of different classes of
users.

Bibliographical Details

It is of course true that all bibliographies do not require to give
annotation of each and every item listed and this is also true even
with regard to other bibliographical details. In fact the amount of
bibliographical details depends upon the purpose of compilation and
the nature of the materials listed. For example, if it is just a reading
list on a particular subject meant for the average readers minimum
bibliographical details would be sufficient. Such a bibliography need
not provide more details than the author's name and the title of each
book included, its date and imprint. If, however, it is meant for
scholars and researchers who would like to know in quickest possible
time how far knowledge has been unfolded on their subjects, it should
record not only books but also periodical articles and other analy-
tical materials with as much bibliographical details as possible. In
certain cases again it is not enough merely to give publication details ;
the total number of pages as also the pages occupied by each section
or chapter, annotations and even indexes should be appended. This
will undoubtedly increase the value of the bibliography immeasurably.
In extreme cases the entries may have to be expanded still further
and must include the exact transcription of the title-page together
with the imprint, a statement of the colophon, the format, the list of
signatures, typographical notes, list of known variants, authorship

and relevant notes on paper, watermark etc. It is of course true that a great majority of books do not require to be described so elaborately. It is only in the case of 'incunabula' and works of antiquarian interest such as classics, original editions of celebrated authors etc., that such elaborate and detailed description becomes a matter of rule and a necessity and not a superfluity. Now, whatever be the details of entry, they should be given in the same order and form all through in order to facilitate easy reference. A bibliography lacking in consistency of purpose and treatment will not only cause irritation and resentment but may even be thrown aside in the long run.

Types of Bibliographies

A bibliography, according to the *Shorter Oxford English Dictionary*, is 'a list of books of a particular author, printer, country, subject'. This therefore, implies that bibliographies may be of various types such as author bibliography, trade bibliography, national bibliography and subject bibliography. But this definition seems to be inadequate for two reasons—first, it includes only books and no other material and secondly, it excludes such other varieties as bibliography of bibliographies, general or universal bibliography, book rarities bibliography, bibliography of localities and the like. This clearly suggests that it is difficult to define systematic bibliography accurately by bringing within its scope all possible varieties of it. In fact, bibliographies may be of a wider variety of types constructed according to the variety of purposes. Within each of these varieties again there may be a variety of refinements such as comprehensive, selective, evaluative and others each of which again has its own uses for different classes of readers. For example, if one wants to know about everything that has been written on a subject he is to consult a comprehensive bibliography on the concerned subject. Another interested in knowing about only the best or standard works on a subject or of an author requires a selective bibliography on the concerned subject or of the author. Evaluative bibliography is of permanent importance to literary editors, scholars and researchers because it not only provides them with minute analysis of the contents of the listed items but also their evaluative annotations.

Primary and Secondary Bibliographies

Arundell Esdaile has divided bibliographies into two broad classes : Primary and secondary. In any field of research it is the primary duty of both the scholar and the bibliographer to know first how far knowledge has been unfolded on their subject up to the present time. The scholar can, however, very easily come to know of it if he can find out an appropriate up-to-date bibliography on his chosen field. A bibliography which records for the convenience of research all such materials as have already been recorded elsewhere is known as secondary bibliography. Secondary bibliographies, as such, stand distinctly separate from primary bibliographies which are nothing but the original records, either in whole or in part, of books and other materials contained in them. From this it follows that the universal or general, trade and national bibliographies which are the original records of their contents are primary bibliographies while subject, author and personal bibliographies and even bibliography of bibliographies in which works already recorded in primary bibliographies are selected and re-arranged for the convenience of research fall within the category of secondary bibliography. Though universal bibliogaphies and publishers' trade lists and special lists of writings may be of some use at times to the scholars and researchers, they are more useful to big libraries than to scholars and so far as select lists are concerned they can help librarians a good deal in selecting books, but they are almost useless to research workers because the research workers do not require to know only the best books on their subjects but everything that has been written on them.

Systematic bibliography, whether primary or secondary, covers a wide variety of types of which we shall first illustrate and discuss those which fall within the range of primary bibliography.

Primary Bibliographies

A. General or Universal Bibliographies and their Importance

The term 'universal or general bibliography' is indeed a misnomer since there can be no universal bibliography worth the name. This, as its name implies, must be a wide, comprehensive and nearly complete survey of the records of civilisation in every field of knowledge and is not, therefore, restricted to any time, place, language, subject or country. That is to say, a general or universal

bibliography should include all books wherever they are produced and in whatever language and in whatever period of human history they are brought out. In a word, it is 'a listing of everything which is known to have existed'. Dr. Ranganathan has elaborated it further in order to indicate what its contents should be. "A bibliography to be universal", according to him, "should include all published materials, whether books or parts of them or periodicals or articles in them or combination of them on all subjects, in all languages in all countries, at all times". The scope of such a bibliography is undoubtedly too vast to include everything printed and published on any subject on earth. Nevertheless attempts have been made at this and even though they are incomplete (and they are bound to be so), they are frequently of great value. Its importance is very great particularly to those scholars who require to identify works of which the particulars given are either incomplete or suspect and the subjects uncertain. This may also help those who want to know what books have been written by a certain author. A close acquaintance with the main Universal bibliographies also helps one to trace out one's required items as quickly as possible.

Difficulties in Compiling a Universal Bibliography

The main purpose of General or Universal Bibliography is to acquaint the readers in every country with the literary output of the whole world. This naturally implies that the task is stupendous, if not virtually impossible. This is definitely an ideal in as much as this will help the intellectual community of the whole world to know one another, to know one another's literary works, cultural heritage and scientific progress and thus make them feel the oneness of man and oneness of the world which is sure to promote international understanding and strengthen the forces of world peace. But like all ideals this is also to remain as an ideal and a dream. The reasons why it is not possible to compile a complete General or Universal Bibliography in modern times may be summed up in the following words :

(i) The languages are so numerous in the world today and books and other reading materials published in them are also so great in number that it is practically impossible to come to know of them all.

(ii) The number of subjects and topics on which books, periodicals etc are coming out is also so varied and numerous that it is difficult to master them all.

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(iii)   Even   if it is   possible to understand all subjects and   know about all documents the compilation of a bibliography of such a huge quantity of documents will still present a baffling problem because institution or society can supply the resources and manpower required for such a huge project.

(iv)   The number of current documents is also so appalling that it is simply impossible to record them all.

(v)   The   arrangement of such a   bibliography poses another question.   Mere alphabetical arrangement will be of no use.   Even if classified arrangement is followed, there is no classified scheme which can meet all the demands.

(vi)   There are again a lot of books of which only the titles are known and no other information is available.

(vii)   Conversely there are some books about which bibliographical and other information is available, but the books themselves are not available for verification and search enquiry.

(viii)   Lastly, even if it is possible to compile a general or universal bibliography, to keep it up to date and to bring it out in print will be no easy task.   The sheer bulk of such a bibliography comprising a huge   mass of written, printed and otherwise produced documents makes it impossible to be brought out in print in modern times.

Some people, on the above ground think that the compilation of a Universal Bibliography will be sheer wastage of money, time and labour since it will serve no real purpose.   More over, as it will also contain a good deal of unimportant, worthless literature not worth reading its value is questionable.   Its purpose can, however, be better served by national bibliographies.   That is why UNESCO has been encouraging different countries to bring out their national bibliographies not only for their own sake but also for the sake of the world intellectual community.

Nevertheless attempts were made in the past to compile such a bibliography.   The pioneering attempt in this regard was made by Konrad Gesner, n profound scholar and a renowned physician of Zurich who succeeded in bringing out in 1545 his *Bibliotheca Universalis in tribus linguis* : *Labina, Graeca et Hebraicā*.   But even this work, though noble and pioneering, is not a comprehensive list of the whole of the world's literature of the time since it excludes the texts in vernaculars because they were considered in those days to be 'writ in water.'

1. Gesner, Konrad. Bibliotheca Universalis in tribus Linguis : Latina, Graeca et Hebraica. Zurich, 1545.

This was the first bibliography of its kind compiled by a famous 16th century physician and philologist. It described in detail 12,000 books in three learned languages of the time : Latin, Greek and Hebrew and was arranged alphabetically under the authors' Christian names. In 1545 Gesner brought out another work *Pandectarum sive Partitionum Universalium* in which he rearranged the items of his original work, under subject. In his last work *Appendix Bibliotheca* which was published in 1555 he made a further addition of 3000 books. Gesner thus listed 15,000 books in all in the three aforesaid classical languages. Though there were as many as 40,000 extra titles from the beginning of printing till 1540, Gesner, father of bibliography as he is rightly called, recorded only 15,000 books because these were, from the intellectual stand point, considered to be of great value, the vernacular books having been looked down upon in those days. The arrangement of entries in this bibliography and the classification scheme evolved in it are, according to Sayers, a true hierarchy of Knowledge. Quite a good number of books listed in it are not found even in the British Museum Catalogue. Hence its value is immeasurable.

2. Brunet, Jacques Charles. Manuel der Libraire et de l'Amateur de Livres. 5th ed. Paris : Didot, 1860-80. 9v.

This is the most widely known and one of the most effective of universal bibliographies. This lists more than 40,000 important works and is especially strong in French and Latin items. This provides us not only with the author list but also with a subject index, the arrangement of which is followed with some modifications even now in some libraries. Each entry gives author, full title, imprint, size and number of volumes, and in the case of rare books also bibliographical and critical notes describing the various copies and editions and proving at times even the facsimiles of the title-pages.

Alternative to UB

There has been little attempt in modern times at providing Universal Bibliographies on a wide scale since their need is now more or less met by National Bibliographies as well as by published catalogues of great national Libraries such as the catalogues of the British Museum, the Bibliotheque Nationale, the Library of Congress now superseded

by the National Union Catalogue of the U.S.A. and so on. Taken together, they make a very near approach to Universal Bibliography. More over, as these catalogues have been prepared with utmost care and accuracy after a good deal of scholarly investigation, they give us a mass of valuable information on such points as full names of authors, the identity of pseudonymous and anonymous authors and so on. Lastly, as most of them are provided with subject indexes as for example the British Museum Catalogue they help us a good deal in tracing out the important background materials on different subjects. Some of the best known examples are given below :

National Library Catalogues

3. British Museum. General catalogue of printed books. 95v. 1881-1900. 13v. Suppl. 1900-1905. Superseded by a new edition commencing publication since 1931, 263v., 1931—1966.

Since it records the great national collection of England it constitutes a major bibliographical tool for any library not only in the English speaking countries, but also elsewhere. It is arranged in an alphabetical order of authors and the contents of a main entry are itemized as follows : heading, description of the contents of the book, imprint and if necessary, also a note. This catalogue is however, provided with the subject indexes regularly published since 1881. The standard of accuracy and reliability of this catalogue is very high.

Its Usefulness

Though the collection of the British Museum is not the largest in the world, it is perhaps the richest and most varied because it contains not only British publications but also those of the British colonies. As the British Museum has been the depository of the British publications and was also the depository of all publications of British India, its catalogue is an invaluable asset to scholars and researchers who want to learn or probe into any aspects of Indian life relating to the British days. Indeed the collection of the Indian publications of the British Museum is so rich and comprehensive that Indian scholars, research workers, bibliographers and bibliophiles are to consult even now the British Museum catalogue to trace out their required materials on Indian topics. Besides, the British Museum catalogue of printed books is also the only source of bibliographical information about early printed books on and

in India.   It is for all these reasons that the catalogue of this library is an indispensable tool for scholars, researchers and librarians in India.

But it is of great value not only to Indian scholars ; its importance and usefulness is great to others in other parts of the world as well. Since it records publications not only of Britain but also of other countries, in different languages on different subjects and at different times and since it serves the purposes of both retrospective and current bibliographies its importance and usefulness as a bibliographical tool to any large research library is beyond question.

4. Library of Congress, Washington. A catalogue of books represented by Library of Congress printed cards, 191v, 1942-1955, with supplements from January, 1956 as 'The National Union Catalogue : a cumulative author list, representing Library of Congress printed cards and titles reported by other American libraries, 1956 to date.

This is America's national equivalent of Britain's British Museum catalogue and perhaps the best example of a continuing catalogue. Entries in it are full and hence they offer a good deal of professional information to librarians. It includes books, maps pamphlets, atlases, periodical publications, music, films and filmstrips. The contents of the main entry are in the order of auther, title, imprints, collation, notes, subject heading and class-mark. If, however, there is no author, the entry is made under the title. As regards bibliographical details, they include the full name of the author, the dates of his birth and date, full little, the place of publication, publisher's name, date of publication, collation, series, edition, notes on contents, history, the Dewey decimal class number and the standard Book number. Tho National Union catalogue represents the stock of the Library of Congress and also of nearly 800 large American libraries and hence it may be regarded more or less as the record of America's national collection.

The National Union catalogue is brought out by the Library of of Congress in collaboration with the Committee of Resources of American libraries set up by the American Library Association. As the National Union Catalogue represents national collection of the United States from 1956 only, the Library of Congress undertook the work of compilation of the *National Union Catalogue* : *Pre*-1956 Imprints from 1968 and has already succeeded in bringing out

450 Vols. As and when it will be completed, it will record as many as 10 million titles of the Library of Congress and nearly 800 other important American libraries and run into more than 600 volumes.

The 1958-1962 supplement of N. U. Catalogue has increased its usefulness further by enlarging its coverage. It also includes books and other reading materials in various oriental languages like Arabic, Chinese, Japanese, Korean and Indic languages. Entries are also made in the scripts of the languages in which these documents originally appeared. Roman scripts are used only for headings and subject headings in order to maintain uniformity and continuity required for a Union Catalogue.

British Museum Catalogue vs National Union Catalogue

The importance of the National Union Catalogue is very great in view of its wide national and international coverage as well as inclusion of a huge quantity of current literature hardly found in any other national library catalogue. Though it is not as rich as the Catalogue of the British Museum in respect of its past holdings, its coverage, however, of contemporary materials is remarkable, far surpassing that of the British Museum Catalogue. Moreover, as it is being constantly kept up to date through monthly and annual supplements, the readers and researchers can easily come to know of even the latest publications in their chosen fields. The British Museum Catalogue is a laggard in this respect. The bibliographical accuracy in N. U. Catalogue is excellent and the technical and professional acumen is commendable. Lastly, since it follows the Anglo-American Cataloguing rules which are very popular everywhere, readers find it easy to use this catalogue while the British Museum Catalogue, based as it is on British Museum rules which are backdated present difficulties to all those who are unfamiliar with them. At any rate, a dispassionate comparative study of the two famous national library catalogues is sure to reveal one patent fact that each is good in its own way and the two together hold the field. That is to say, the two are complementary to each other and none is complete in itself.

5. Bibliotheque Nationale. Catalogue Gènèral des Livres Imprimes : Anteurs. Paris : Imprimerie Nationale, 1897 to date.

It is one of the most important general bibliographies of French publications. It represents the holdings of the National Library of

France and as such, it adequately serves the purpose of a bibliographical tool of great magnitude. Each entry gives the author's full name, title, edition, imprint, collation and sometimes notes and reprints from periodicals and so on. Entries are analytical and the quality of cataloguing is of a very high order. There are, however, no entries for anonymous works, Govt. and corporate authors and periodicals. The bibliographical information about each book listed in it is however, remarkably accurate. This catalogue, on the whole, is an excellent bibliographical tool that serves as the prime source of information on all French books. As the Bibliotheque Nationale receives all books published in France according to law, its catalogue is not only comprehensive but also highly representative of literature of all kinds published in different subjects and in French and other languages within France. The only drawback of this catalogue is that its production is very slow.

6. National Library, Calcutta, Catalogues

The National Library, Calcutta, the premier library in India has been the forerunner even in respect of the publication of printed catalogue. In its early phase it was the Calcutta Public Library which in course of time was amalgamated with the-then Imperial Library in 1903, which was renamed The National Library in 1949, two years after independence. The catalogue of the Calcutta Public Library was first published in 1855. Late Bepin Chandra Pal, the famous orator and statesman who was appointed the Librarian of the Calcutta Public Library took up the work of compilation of the Catalogue on new lines. The Catalogue of the Calcutta Public Library was again published in 1898. John Macfarlane, the first Librarian of the Imperial Library published catalogue of a considerable number of volumes sometime in 1905.

The National Library has a large number of printed catalogues of which the *Author Catalogue of Printed Books in European Languages* (10 vols) and its supplements, *Subject Catalogue of Printed Books in European Languages* (2 vols), 2 *Author Catalogue of Printed Books in Bengali Language* (4 vols), *Catalogue of Sanskrit, Pali and Prakrit Books* (2 vols), *Bibliography of Indology* (3 vols), *Catalogue of Periodicals, Newspapers and Gazettes* (vol I, published in 1956), the list of documents in Sir Tej Bahadur Sapru's private papers known as *The Sapru Correspondence : A Check List* (pub. in 1961), *Catalogue*

Raisonne of the Buhar Library (Arabie Mss 2 vols published in 1921 and 1923) and *Catalogue of Printed Books in the Ashutosh Collection* (4 vols) are most important.

B. Incunabula or Book Rarities Bibliographies

This type of bibliography lists the records printed in the 15th century, the cradle period of printing. It is highly useful in as much as it records the materials at once rare and valuable. The compilation of such bibliographies is often very difficult since most of the records, printed as they were in the pioneer period of printing, do not possess some of the basic facts such as author's name, title, printer's name, place and date required for entry. It is often by much bibliographical investigation and research that the bibliographer can establish these facts. Such bibliographies are therefore, as a rule the work of bibliographic scholars and researchers. Most of these bibliographies are complete since the materials listed in them belong to a limited period of time. A few examples are given below :

7. Hain, Ludwig F. T. Repertorium bibliographicum ad annun MD. 2v in 4. Stuttgart : Cotta 1826-38 (reprinted 1920, 1925 and 1948).

Hain is important for he lists most of the important works (16,000 incunabula) published before 1504 with as much accuracy and details as possible. But it is difficult to use his bibliography because of the code of abbreviations he has used to provide the number of leaves, typographical notes and others.

8. Proctor, Robert. Index to the early printed books in the British Museum to 1500, with notes on those in the Bodleian library. 4v. 1898-1899.

It is a wonderful piece of work in which not less than ten thousand incunabula have been arranged on typographical evidence, first by countries and then by presses, sub-arranged chronologically. Indexes of authors have also been provided in this work.

9. British Museum. Catalogue of books printed in the XVth. century now in the British Museum. 1908 to date.

This monumental work has reached its ninth volume which was published in 1962. A photo-litho reprint of the first eight volumes was brought out in 1963. Entries in it are arranged in Proctor-order as described above.

10,   Early Indian Imprints : an exhibition from the William Carey
Historical Library of Serampore, compiled by Katharine
Smith Diehl, Serampore, West Bengal. The Council of
Serampore College, 1962.

It is a comprehensive list of 330 books printed In India before
the close of the year 1850. The items included in it have been selected
from a larger catalogue, being prepared with great bibliographical
accuracy, of all such early Indian imprints now in the William Carey
Historical Library at Serampore College, West Bengal.

C.   Bibliography of Anonymous and Pseudonymous Works

It is very difficult, if not impossible, to trace out works that have
been published anonymously or pseudonymously unless there are
suitable bibliographical tools devoted to that purpose. Most of
these tools are arranged alphabetically by title with notes of author,
details of Publication and annotations and notes about the authority
for the ascription. They are also provided with an index of authors
as well as with an index of initials and pseudonyms. The best known
examples are :

11. Halkett, S. and Laing, J. Dictionary of anonymous and
Pseudonymous literature : new and enlarged edition by
James Kennedy and W. A. Smith and A. F. Johnson.
9 Volumes. Edinburgh, Oliver & Boyd, 1926-62.
This is, as it is said in its preface, "the product of at least
seventy-five years of unbroken research". This is really an
outstanding bibliography in this special field. Here titles of
anonymous and pseudonymous authors are arranged alpha-
betically with the names of the authors in square brackets
and notes about the authority for the attribution at the end.
Of the 9 vols the first six contain the main sequence, vol. 7
contains an index of authors, an index of initials and pseu-
donyms, vol. 8 records the anonymous and pseudonymous
works of the period 1900-1950 and vol. 9 lists additions to
the period before 1900 and also some additional items for
the period 1901-1950.

12. Querard, Joseph Marie. Les supercheries litteraires devoilees.
2nd edition. 7 Volumes. Paris, Daffis, 1869-79 (Supplement,
1889).

This records mainly French works though some foreign and classic items are also found included in it. For pseudonymous German literature we may mention the following important work :

    13. Holzmann, Michael and Bohatta, Hans. Deutsches Pseudonymen-Lexikon, 7 volumes, Weimar, 1902-28.

This is an excellent bibliography which covers nearly 100,000 works.

D. Trade Bibliographies—their difference from National Bibliographies

A Trade Bibliography, as its name implies, is brought out by the book trade, i.e., by a publisher or a book-seller or a group of such agencies. Like a National Bibliography it also attempts at recording the printing output of a given country though its purpose somewhat differs from that of a National Bibliography. A Trade Bibliography is compiled primarily to facilitate the sale or purchase of books, though it may also serve various other purposes. For example, it may be used as a book selection tool and sometimes also as a source of current bibliographical data. But the purpose of a National Bibliography is far nobler still. Its motive is not commercial but intellectual. It tries to maintain a record of currently published materials of all kinds deposited at a central point according to some system of legal deposit to provide the readers with an effective access to their own intellectual resources, to help scholars in the field of research, to make every published book promptly known to all those who may be helped by knowing about it, to help build the future history of the nation, to lend service to to-day's readers as well as to future historians.

But Trade Bibliographies have been the precursors of National Bibliographies, the latter being an entirely post-war development. Indeed the trade bibliographies used to serve to some extent the purposes of National Bibliographies even in some advanced countries like the U.K. and the U.S.A. before the advent of formal and comprehensive National Bibliographies. A Trade Bibliography is generally based on weekly lists published by the same agency and subsequently cumulated into monthly, quarterly, annual and later on into three or five-yearly volumes. But as Trade Bibliographies are not evaluative because they often contain a minimum of bibliographic information and almost no annotation, they practically come to no

purpose to research and special libraries as also to big libraries. Some well known trade bibliographies of the U.K. and the U S.A. and India given below :

14. The English Catalogue of Books, 1801 to date, 1864 to date. London, Publishers' Circular.

This gives in one alphabet under author, title, and subject the size, price, month and year of publication and publisher of books issued in the United Kingdom, 1801 to date, 1864 to date. It is drawn from the weekly lists published in The *Publishers' Circular* which are themselves cumulated into monthly lists. At present it appears as an annual volume with five-yearly cumulation. This has been a primary source of British books prior to the publication of the British National Bibliography. Though it is a tiresome and often an unreliable source, the librarian has still no alternative to it especially for materials before the advent of the B.N.B.

Another trade list of similar compilation is

15. Whitaker's Cumulative Book List, 1924 to date. London, Whitaker.

This is drawn from the weekly and monthly lists of publications included in the *Book-seller* and is issued quarterly, annually and later on into five-yearly volumes. It is arranged in classified order, with an index of authors and titles.

16. Cumulative Book Index : a world list of books in the English Language, 1898 to date. New York, H. W. Wilson.

This is the most efficient of the bibliographies in the English language. This is issued monthly, cumulating into semi-annual and since 1957, into permanent two-year cumulations. Earlier permanent volumes covered four to six years. Originally it used to record only American publications, but since 1928 it has widened its scope by including the publications of the rest of the English-speaking world. It is, therefore, more useful than its English counterpart, the *Cumulative Book List*. It is highly popular since it indexes material under a wide variety of headings such as author, title, subject etc., in one alphabetical sequence which helps the readers of all intellectual levels. The main entry is under the author's name (including Pseudonym) and records dates of birth and death, full title as it appears on the title-page, series, edition, size of the book, exact

pagination, price, details of illustrations, maps etc., and the Publisher's name, place of publication and date, Library of Congress card number, and standard book number, if available. It used to supplement the U. S. Catalogue and became in fact a continuation of it when the latter ceased to come out in 1928. It is famous for its high standard of bibliographical accuracy and serves as an indispensable reference tool for verification of titles of books published in English as well as for full bibliographical data about them. It is also an important tool for selecting books published in the English language.

17.   Books in Print, 1948—, Annual.
       New York, Bowker.

It is an author-title-series index to the Publishers' Trade List Annual. It does not, however, include non-book material listed in the aforesaid catalogue nor does it provide more than one source for any book. It gives author, title, edition, binding, year of publication, illustration, series, the ISBN and publisher and price of books and covers only the publishers included in the Publishers' Trade List Annual. Since 1966 this is published in two volumes of which the second one namely the title-index has a complete list of all known publishers including those not included in PTLA. Its coverage is very wide. It lists 4,50,000 titles which include books of all kinds ranging from children's books to text books and paperback. This is a very useful tool both for book selection and reference. It has a companion volume, *Subject Guide to Books in Print*.

18.   American Book Publishing Record, 1961—
       New York, Bowker.

It is a list of current American books drawn from the weekly records of the *Publishers' Weekly*, issued monthly and then cumulated into annual and five-year volumes. The items are arranged according to Dewey Decimal Classification. There are, however, both author and title indexes. Books are also listed just after the classified part under three different heads : Fiction, Juvenile Literature and Paperback. As regards bibliographical details, they are the same as in the Publishers' Weekly. ABPR is an important tool for the selection of books in small libraries.

19.   British Books in Print : the Reference Catalogue of Current Literature, 1967—, Annual.
       London, Whitaker.

This is a trade bibliography that lists books in print in England. It is an invaluable source of reference similar to the American Books in Print published by Bowker Company of New York. It does not, however, include such books as are priced less than £0. 12½. Each entry in it is more or less complete since it contains all relevant information such as the author, title, the publisher, place and date of publication, edition number, price etc. It is now being published in a single volume with author, title and subject entries arranged in a single sequence and records the publications of 1,800 British publishers.

20. Bibliography of English Publications in India, 1976— (Annual), Delhi, D.K.F. Trust.

This is, according to the Publishers, a bibliography of significant and scholarly publications in English brought out in India. It includes commercial, institutional and government publications of various kinds like books, monographs, exceptional text books, atlases, serials, proceedings and transactions of different learned bodies, societies, conferences, seminars and symposia, yearbooks etc. The entries of this bibliography do not thus lend support to the tall claim made by the publishers that it is a bibliography of significant and scholarly English publications of India. Nevertheless it is an honest attempt in the right direction so far as publication of current trade bibliographies in India is concerned. Though a current bibliography for the year 1976, it, however, includes quite a lot of books published in 1973, 1974 and 1975 because these books were not available before 1976.

There are nearly 16000 entries which appear in three parts : author, title and subject. The author part containing author entries provides maximum information while the title part gives such brief information as is sufficient to identify the book or the like. The subject part covers nearly five hundred subjects and gives subject references. It is, on the whole, a dependable bibliography.

E. National Bibliography

National Bibliography is as difficult to define and as loosely used as most other terms in enumerative bibliography. Generally speaking a National Bibliography means lists of books published in a given country. That is to say, it is a conprehensive, almost complete record of both written and printed output in a given country, furni-

shing description and supplying verification which cannot be found in the less complete bibliographies. This record is, therefore, often referred to as 'national literature'. But this definition seems to be too narrow to include books produced by the natives of a given country abroad. For example, the works of an Indian author in England may appear in both Indian and British bibliographies, Further in the case of older literature, Americana, for example, includes not only books written or published in America, but also all the rare and early book about America. In the case of modern literature the bibligraphies of African and Oriental countries, for example, consist largely or entirely of books published elsewhere other than in those countries, in other than the languages of those countries and by foreign authors.

The Library of Congress classification includes under the national bibliography of a country the bibliography of (a) books printed and published in that country, (b) books by native or resident authors, (c) books written in the language of that country by foreigners and (d) the country as subject : (i) general, (ii) literature, (iii) biography, (iv) history and (v) description.

But this definition seems to be very broad and National Bibliography is now concerned with the publications in a given country which are delivered to the National or some other libraries in accordance with the Act or Acts prevailing in that country for the registration and delivery of book. If this is so, the compilation of National bibliographies has now become primarily the task of National or other libraries—the delivery stations though the assistance from other sources, commercial and professional, is not to be minimised. Indeed the association of book dealers and publishers, the library associations and individual bibliographers may co-operate with the professional staff of the National or the National Central Library in preparing a comprehensive National Bibliography.

Before the introduction of formal National Bibliographies, if there were any national bibliographies at all, they were mainly in the nature of Trade Bibliographies and copyright lists. In the beginning they were either owners' inventories or dealers' advertisements and in the case of printed books the dealers' lists seemed to have come first. The prototypes of these were the posters which the copyists and manuscript-dealers of medieval times used to fasten to

their door-posts or to those of the local university and students' boarding houses.

Uses of National Bibliography

Unlike Trade Bibliography whose motive is primarily commercial, National Bibliography has a noble purpose. Its motive is purely intellectual. It serves various purposes. First, it provides the readers with an effective access to their own intellectual resources by maintaining a record of the currently published materials of all kinds on all subjects in the language or languages of the country. Secondly, it brings every published book promptly to the notice of all those who may be helped by knowing about it. Thirdly, it helps scholars in the field of research by holding before them the literary or scientific treasure of the nation. Fourthly, it lends service not only to the present generation of readers but also to future generations. Fifthly, by maintaining records of intellectual resources it helps build the future history of the nation. Sixthly, its purpose is not to control publication but to encourage literary production and intellectual activities. Seventhly, it helps in the transmission of literary document, from one generation to another. Eighthly, this is the only method by which the huge literary output of a country can be brought under effective bibliographic control. It also gives an idea to the users if the country is advancing or regressing in respect of literature, science and culture. Lastly, it also serves as a standard reference work and a tool for book selection. This may also serve as a guide for cataloguing to the librarians and Library workers.

Some well known examples of National Bibliographies are given below :—

21. British National Bibliography, 1950 to date.
London, British Library, Bibliographic Services Division, 1950—, Weekly.

Legal deposit has been obligatory in Britain for about three hundred years and the catalogues of the British Museum, London, the Bodleian Library, Oxford and the University Library, Cambridge record a good deal of the printed production in the United Kingdom. But before 1950 no attempt was made to publish a comprehensive current national bibliography in Great Britain in a planned and organised way. It was in January, 1950 that the British Museum brought out the first issue of the British National Biblio-

graphy and has since then been publishing it at regular weekly intervals. This is based wholly on the copyright accessions to the British Museum. The B.N.B. is edited by the professional staff of the British Museum and published by the Council of the B.N.B. appointed by several institutions like the British Museum, Library Association, Publishers' and Book-sellers' Association, Aslib, Unesco & others.

The B.N.B. lists almost all new books and serials and the more important government documents received at the British Museum copyright office. The entries are arranged according to *Dewey Decimal Classification* and are fully catalogued in accordance with *the Anglo-American Cataloguing Rules (1978)*. The subject headings have been drawn by PRECIS since 1972. The entries are assembled in classified order in each weekly issue and subsequently cumulated into monthly, quarterly, half-yearly, nine-monthly, annual, and multi-annual volumes.

This bibliography has two sections — Subject Index and the Author Index. Under Subject Index entries are arranged according to a system of subject classification. The fullest information about a book is given in the subject section which includes the fullest form of the author's name, the full title, the number of pages, the kind of illustration. the size, the series, the edition number, the name of the publisher, the price and the date of publication, occasional annotation and the ISBN and the BNB serial number. The Alphabetical Index, on the other hand, contains under the name of the author a shorter entry which includes a short title, edition number, publisher's name, price and the name of the editor or translator if there be any. When the author of a book is known one may look under his name in the Author Index. The information given here will be adequate for most purposes. If, on the other hand, fullest information about a book is required one should turn to the entry in the subject section. If the work be a compilation or a translation, the entry in the Alphabetical Section may be found under the compiler or editor or translator. In the case of pseudonymous works entry is made under the pseudonym.

The B.N.B. lists every new work published in Great Britain together with a full bibliographicnl description and its precise subject. This, however, excludes certain types of materials such as

   (i)   Cheap novelettes

(ii)   Music (listed)
(iii) Maps
(iv)   Periodicals (except the first issue of a periodical under a new title)
(v)   Some Government Publications
(vi)   Unchanged reprints which escape from provisions of the Copyright Act
(vii) Publications without a British Imprint

There is no longer any time-lag in the printing of B.N.B. because it is now printed from computer-controlled phototype setting which turns it out promptly and in time.

The major value of the B.N.B. lies in that it is an accurate and comprehensive source of British bibliographical information. Secondly, it is used in most libraries as a basis for production of catalogue entries. Thirdly, it offers subject diagnoses of all books listed in it and printed card service covering publications from 1956 to date. Fourthly, its scope is wider than British, for it includes many works which have been published even abroad. Lastly, it may also be used as a tool for the selection of new books.

22. Indian National Bibliography, Quarterly, October, 1957—December 1963. Monthly, September 1964—, Calcutta, Central Reference Library at the National Library.

In India there had been in force since 1867 an Act namely the Press and Registration of Books Act which helped our foreign masters to feel the pulse of public opinion and to put down without delay any subversive tendency, as and when it raised its head. Thus its purpose was only to control publication and not to take stock of the literary output of the country for encouraging literary and intellectual activities. But independence has brought in its wake a national outlook in every sphere. The old act was retained for sometime but its sting was lost. Soon the Delivery of Books and Newspaper Act was passed in 1954 and it was amended in 1956 to include serials as well. This amendment helped the cause of planning a current national bibliography and accordingly the Indian National Bibliography Committee under the Chairmanship of B. S. Kesavan who was also the general editor of the Bibliography was set up by the Govt. of India in 1955 to decide upon the scope, script, cataloguing, classification etc., of the proposed bibliography. Accordingly the first issue of the Indian National bibliography was compiled and

C : BTP (III)—26

brought out in August, 1958 by the Indian National Bibliography unit of the Central Reference Library stationed at the National Library, Calcutta. It lists the publications received at the National Library Calcutta under the Delevery of Books and Newspaper Act of 1954 as amended in 1956. The Act enjoins upon every printer or publisher to deliver four copies of his publication (best of its kind)—one for the National Library, Calcutta, another for the Connemera Public Library, Madras and another for the Central Reference Library, Bombay and the other copy for the Central Reference Library, Delhi, which has however, not yet come into existence, under a penalty for not doing so.

This bibliography covered publications from October, 1957, and was originally issued quarterly and cumulated annually. The frequency of its publication has however been changed from quarterly to monthly since September, 1964 though it has not been able to catch up the time-lag even now. There is an alphabetical subject index with every issue. It is, in the words of the Committee "an authoritative bibliographical record of current Indian publications" in fourteen major Indian languages—Assamese, Bengali, English, Gujrati, Hindi, Kannada, Malayalam, Marathi, Oriya, Punjabi, Sanskrit, Tamil, Telegu and Urdu. It records all the publications in the above fourteen major Indian languages received at the National Library Calcutta under the provisions of the Act mentioned above except, the following :

- (i) Musical scores
- (ii) Maps
- (iii) Keys and guides to textbooks
- (iv) Ephemeral materials
- (v) Periodical publications (except the first issue of a new periodical and the first issue of a periodical under a new title)
- (vi) Telephone directory.

The I.N.B., now also lists books published in Sindhi.

The Indian National Bibliography has been divided so long into two parts : (i) general publications and (ii) government and semi-official publications and as such, it has had two separate indexes. But as this division is uncalled for according to many users in view of the fact that it causes unnecessary separation of publications on the same subject, all the books irrespective of their source of publication are now being arranged in one classified sequence and

this arrangement has been followed from the issue of January, 1973. As a result of this amalgamation there is now only one alphabetical index instead of two. Names of authors and titles of books are transliterated into roman script with diacritical marks, wherever necessary in order to render it easily usable to the readers of all language groups acquainted with roman scripts as well as to invest it with international value but, annotations are given in English. In the classified section entries are arranged by subjects according to Dewey Decimal Classification scheme. Full information about a book is given in the classified section providing Dewey class number, the author's name, the full title of the book, place of publication, publisher's name, date of publication, number of pages, illustrations, size, binding, price, series and sometimes also annotations. Colon number is also provided at the right hand bottom corner and the language of the publication indicated by a symbol is given at the left hand bottom corner of each entry. Each monthly issue starts with a preface covering scope and arrangement, list of abbreviations used and language symbols, the main part and the index part. The index comprises, author, title and subject. As regards entry of each item standard cataloguing method is followed. But scholars who do not follow the roman script and are conversant only with their mother tongue feel severely handicapped in utilising the I.N.B. profitably. Hence it was decided that separate language fascicules in their respective scripts should be brought out by the respective state governments and accordingly the following current language fascicules in their respective language scripts have already come out :

                   Assamese (1959—   )
                   Bengali (1958—   )
                   Gujrati (1959—   )
                   Hindi (1958—   )
                   Kannada (1959—   )
                   Malayalam (1958—   )
                   Marathi (1959—   )
                   Oriya (1959—   )
                   Punjabi (1959—   )
                   Tamil (1958—   )
                   Urdu (1958—   )

In order to maintain uniformity in standards all these annual language bibliographies are prepared by the Indian National Biblio-

graphy unit in Calcutta and then pretended by the respective state governments. But there is no regularity in their appearance.

The fascicule in Sanskrit was however, published by the Central Reference Library itself in 1958, 1963 and 1967—because Sanskrit is the classical language of all India and no exclusive language of any region or state. It is in Devanagari script.

This bibliography is an accurate and comprehensive source of current bibliographical information in India and serves as a standard reference work and a tool for book selection. This may be also used as a standard guide for cataloguing and also as a book ordering record.

Drawbacks of INB

The Indian publishing scenario is characterised by large volume of publications, a great number of publishers, multiplicity of languages, overall poor production, and a low level of bibliographic control. All these are reflected in INB. An ideal national bibliography should reflect overall publishing situation of a country and should show how and where improvements are possible. INB has failed to achieve that objective.

The main drawback of INB is the time-lag between the publication of a book and its inclusion in it. INB itself is running behind time schedule. Generally there is a gap of two to three years in the publication of its monthly issues. The annual cumulated vols are not also published on time. As a result INB is gradually losing its importance as a bibliographical tool. The 1977 issue of INB, for example, records only 40 p.c. of the documents carrying imprints of that year. One of the reasons of this time-lag is the lacuna in the DB Act itself the provisions of which are not so effective to receive books from the publishers on time. The publishers and printers, according to this Act, are bound to deposit a copy of each of their publications to the National Library and to three other libraries within thirty days of its publication. But it is seen that some publishers do not care to send books at all and some deposit their books at a later date. So far bringing out the INB in time what is needed is to revise and amend the DB Act in order to furnish the erring publishers. Besides, there is the administrative problem which is also responsible for the time-lag. Though recently there is some arrangement of printing it promptly, it is uncertain if it will be able to reduce the time-lag.

Secondly, for proper bibliographic control INB should cover all materials in all Indian languages. But at present it includes not more than 50 p.c. materials. In order to impart to it a truly national character INB should record all language books. But on account of lack of proper infrastructure and disorganised book trade the regional language books are not getting priority. Publishers favour English books because they have all-India market. Scientific and technical books for example are published in English language. Where as literature in other fields are published in regional languages. These language books escape timely notice and as a result INB includes many out-of-date information when it is published.

Another drawback of INB is the absence of cross-references in the area of subject indexing. Thus a reader seeking Theology will not get information under Theology though he may get it under Roman Catholic Theology. But no cross reference is made either from Theology or from Roman Catholic Theology.

Fourthly, items in the *descriptor chester* are not always rotated. Thus, *Exercises* : *Personal Hygiene* will not be found under *Personal Hygiene* : *Exercises*.

Fifthly, the lack of table of contents and the lack of publishers list are also matters of concern which should be remedied.

Again, in India both the private sector and the public sector are participating in the production of books. In order to ensure physical access to the information contained them what is needed is to evolve a national system of bibliographic control by producing a network of bibliographies in regional languages. Unfortunately there is almost complete dearth of regional language bibliographies. There are of course some bibliographies on various topics, but they are mostly devoted to English language puiblications because they have got all-India market.

Sixthly, it was expected that bibliographies of local literature should be produced at the state level so that the total of these efforts might produce some effective result. But like most of our pious projects this too has failed.

Moreover, there is the administrative and operational lacuna. The loopholes must be plugged off. A national body should be organized to coordinate the bibliographic activities at different levels. The bibliographic activities of such a vast country should not be dependent on a centralised project. It should rather be

decentralized. Like the NISSAT a national system of bibliographic control may be created. It should be borne in mind that INB alone is not able to cope with vast information explosion. The The State Central Library in every state should be entrusted with the responsibility of bringing out language bibliographies and subject bibliographies in regional languages.

Lastly, to effect proper bibliographic control through INB administrative difficulties should be done away with and new machinery in addition to Alfa-Photo type setting should be installed and stern measures should be taken against those not complying with depository laws.

This bibliography is an accurate and comprehensive source of current bibliographical information in India and serves as a standard reference work and a tool for book selection. This may be also used as a standard guide for cataloguing and also as a book ordering record.

23. Bibliographie de la France, ler Nov., 1811 to date.
      Paris, Cercle de la Librairie.

This is a weekly national bibliography of France, equipped with annual author and title indexes and an alphabetical list of periodicals. This lists all materials published in France and received by the Legal Deposit service at the Bibliotheque Nationale. It consists of three parts—Official Part, Professional information and Notices of new publications (trade list). The coverage of the official part extends to books, pictures, music, new serials, official publications and auction catalogues. The third part namely Notices of new publications appears in annual and multi-annual volumes and as such provides a complete current national bibliography of French publications. It is an invaluable tool for tracing out materials produced in French within the confines of the country. Moreover, as it has been published since the early years of the nineteenth century, it is useful also as a retrospective bibliography.

24. National Union Catalogue : a cumulative Author List,
      1953-57, 1958, 28 vols 1958-62, supplements.
      Washington, Library of Congress.

This is a cumulative author list representing Library of Congress printed cards, and titles reported by other American libraries. Though there is no permanent national bibliography as yet in the United States, the National Union Catalogue records a large portion

of the most important mat rials published by federal, state and city governments, by the industrial, commercial and research organisations, universities and colleges, trusts and foundations. It is an author list which gives at least one location for each material entered. So far there is no subject catalogue or index, though this is more or less covered by the Cumulative Book Index.

25. Cumulative Book Index, 1898 to date.

New York, H. W. Wilson.

This is very nearly a complete record of American publications from 1898 onwards.

Though a trade list, it records in one alphabet author, title and subject entries for all books and pamphlets commercially published and thus it serves to some extent the purposes of a national bibliography of the United States.

26. Knizhnaia Letopis ; Organ Gosudarstvennoi Bibliografii SSSR, 1907—.

Moskva ; Vsesoiuznaia Knizhnaia Palata.

This is the national bibliography of the Soviet Union. It had its beginning in 1907, but subsequently it was taken over by the All-Union Book Chamber, a unique governmental agency the function of which is to centralise all bibliographical services as well as to bring out a complete list of all publications in the U.S.S.R. It is now issued weekly and lists all books and pamphlets published in the Soviet Union. It describes all items in Russian, but also gives the symbols of languages in which books and pamphlets have been written. Information provided under each entry includes author's name, title and subtitle, imprint, collation, number of copies published, price and sometimes also short annotations if the titles do not indicate the snbject-matter or the contents. The arrangement followed in it is classified according to the Soviet modification of the Dewey Decimal Classification.

This weekly national bibliography of the Soviet Union, when cumulated into an annual volume, takes a different name, Ezhegodnik Kinigi SSSR ; Systematicheskii Ukazatel which again since 1945 has been published semi-annually, listing all materials in Knizhnaiä Letopis except text books, minor departmental publications etc. This also provides a detailed author-title-subject index of books in Russian and also similar indexes to publications in other languages of the U.S.S.R.

Besides this, each of the Republics within the Soviet Union keeps its own record of books based on legal deposit and issues its own bibliographical index.

27. Ch'uan-Kuo hsin shu-mu, 1950—
     (National Bibliography, 1950—). Peking, Wen-hua pu Ch'u
     —pan shih—Yeh Kuan-lichu tu-shu kuan, 1951—Frequency
     varies.

It is the national bibliography of Communist China. The output of the printed presses in Chinese main land has increased immeasurably since the assumption of power by the present regime. The above bibliography lists all books, pamphlets, pictures etc. published during the period under review. Arrangement is topical according to the classification scheme for medium and small sized libraries. Since 1954 it is being published by the Acquisitions Library of the Bureau of Publications of the Ministry of Culture and kept uptodate by brining it out twice a month now. Besides this current bibliography there is also a cumulative volume published annually under the title of Ch'uan-Kua-tsung shu-mu beginning with the year 1955.

In compiling this bibliography the Chinese librarians have drawn heavily from the Russian experience and practically planned it on the model of the Russian National Bibliography.

Secondary Bibliographies

F. Subject Bibliography

A subject bibliography is a comprehensive list of all books, periodical articles, pamphlets and other analytical materials that have appeared on that subject. Such a bibliography is international in scope since it covers everything that has appeared on the subject in different languages and in different countries of the world. It enables scholar and researchers to know how far knowledge has been unfolded or research has been done on the subject. In the absence of such a bibliography they may work hard for long on the subject only to realise at length to their utter dismay that what they have done so long was done long ago by some other scholars. J. D. Cowley has therefore, rightly said that "the subject bibliography is a method : the cataloguing and description of material as preliminary to the study of a subject." Without it much of a scholar's work may turn to be fruitless labour at the end. That is why there is such a great demand

for subject bibliographies in the fields of higher study and research. Such bibliographies new and out-of-date, complete and incomplete, current and retrospective virtually exist for every branch of human knowledge and it is the duty of the scholars and researchers to find them out and consult before undertaking any project of research. A few examples of subject bibliography are given below :

28. The Cambridge Bibliography of English Literature, ed. by F. W. Bateson, 4v. Cam. Univ. Press, 1940 ; Supplement, edited by G. Watson, Cambridge, 1957.

This is a descendant of the Cambridge history of English literature and a great monument of English scholarship. This lists some Commonwealth but no American literature. It is arranged chronologically but subdivided by literary forms. As regards chronological arrangement Vol. 1 covers 600—1600 (in three sections, Anglo-Saxon, Middle English, Renaissance to Restoration) ; Vol. 2 covers 1660—1800 ; Vol. 3, 1800—1900 and Vol. 4 contains an index of subjects, titles and authors. Each period again begins with an introduction giving the intellectual, social and political background to the literary history and ends with the arrangement of works by form. The arrangement followed under each author is as follows : bibliographies, collected editions, separate works with date of first edition and later editions within the first fifty years and a list of bibliographical and critical works. In its entries, it follows the wording and spelling of the title-page of the first edition. Though primarily a literary bibliography it claims to have recorded all printed books including chapbooks, scientific treatises and newspapers and magazines.

29. Rand, Benjamin. Bibliography of Philosophy, Psychology, and Cognate subjects. 1 volume in 2. New York, Macmillan, 1905 (reprinted 1949).

This is an indispensable bibliography for the older material on the subject. One of the outstanding features of this excellant work is the inclusion in it of the analysis of the contents of learned journals. As regards arrangement of entries the history of philosophy including works dealing with the subject in general comes first, then come the detailed bibliographies of individual philosophers and psychologists, systematic philosophy, then logic, æsthetics, philosophy of religion, ethics and psychology one after another.

30. Education Abstracts, 1949 to date. Paris, UNESCO.

This is a monthly selective guide to books and periodical articles in different languages. Entries are classified and there are author and subject indexes in each issue, which finally appear in the form of an annual cumulation.

31. Bibliography of Indology, vol. 1—Indian Anthropology. Compiled by J. M. Kanitkar and others. Calcutta, National Library, 1960.

It is a basic list of primary materials on all aspects of Indian culture comprising 2.065 entries. Most of the entries are annotated for the benefit of the readers. The annotations are largely adaptations from competent reviewers in journals of repute and the source is indicated in each case.

32. A Descriptive Catalogue of Bengali Works, ed. by J. Long. Printed by Sanders Cones & Co., 63 Cossitollah, Calcutta, 1855.

This is a classified list of fourteen hundred Bengali books and pamphlets issued from the press during the sixty years between 1795 and 1855, with occasional notices of the subjects, the prices and the places of printing. The purpose of this compilation was to guide those who wished to procure Bengali books either for "educational purpose or for gaining an acquaintance with the Hindu manners, customs and modes of thought." This is the first bibliography of Bengali works intended for giving a clear picture of what has been achieved in the Bengali language up to the time it was printed. This is an extract from a larger catalogue.

33. International Catalogue of Scientific Literature, 1902-19, 14v. Royal Society of London.

This includes books and periodical articles on Mathematics, Mechanics, Chemistry, Astronomy, Meteorology, Mineralogy, Geology, Mathematical and Physical Geography, Palaeontology, General Biology, Botany, Zoology, Physical Anthropology, Physiology and Bacteriology. It was brought out in two Parts, each containing schedules and indexes in four languages, an author catalogue and a subject catalogue.

34. Annals of English Drama, 975-1700. Compiled by Alfred Harbage. Philadelphia, Pennsylvania U. P., 1940.

This is a specialised bibliography relating to a form. All plays,

extant or lost, are listed in it chronologically and indexed by authors, titles, and dramatic companies. Two pages in this book have been taken as unit for making the entries in columns under such headings as date, authors, titles, type (rough classification of the play), auspices, that is, the company which held the first performance, first edition and latest modern edition.

35. A List of English Tales and Prose Romances printed before 1740. Compiled by Arundell Esdaile. London, Bibliographical Society, 1912.

This is the most pioneering work in the field of bibliography of English novels. This bibliography is in two parts : 1475-1642, and 1643-1739. The arrangement within each is alphabetical by author and locations are also provided. This work of Esdaile has however, been continued by Andrew Block under the title of The English Novel, 1740-1850 in which entries have been made alphabetically by author and an index of titles has been appended. But this is considered neither complete nor reliable.

G. Bibliophilic Bibliography

There are some bibliophiles, book collectors and literary enthusiasts who have a craze for old and rare books, especially for first editions of books of celebrated authors. They have fancy for such books for their magnificent look, distinctive physical features, colourfulness, sumptuous bindings, decorative covers, brilliant illustrations and pictorial ornamentation, grand illumination and beautiful type faces. Some of them have developed such a fad and dry-as-dust devotion to such books that they enjoy buying such distinctive old and rare books and are prepared to pay even fancy prices for them. They have such a fancy for the first editions of books of their favourite authors sometimes on sentimental ground and sometimes for the purpose of restoring original readings and sometimes for getting original thoughts of the authors. Many such scholars in the past especially in the 18th and 19th centuries rendered inmense service to the cause or compilation by placing, dating and identifying the incunabula and the early printed books—such men even today find pleasure in collecting distinctive old books and preserving them.

It is for such collectors and literary enthusiasts that some bibliographies have been compiled. A bibliography that records old and rare books, first editions of celebrated authors is known as

bibliophilic bibliography. Two examples of *bibliophilic bibliography* are given below :

> 36. Johnson, Merie de Vore.   American First Editions. 4th ed., revised and enlarged by Jacob Blanck, N. Y., Bowker, 1942.

This is a bibliography of great importance to book lovers and literary enthusiasts in as much as it lists first editions of more than 200 American authors.

> 37. Ricci, S. de. Book collectors' Guide : a practical handbook of British and American bibliography. Philadelphia, Rosenbach, 1921.

This bibliography lists old and rare literary works covering a long period from Chaucer to Swinburne. It is also highly useful to collectors and book-lovers.

H. Author Bibliography

An author bibliography is the list of writings by an author together with the works on him by others. An author bibliography. as such, cannot be regarded as complete in view of the fact that even if the author is dead or his pen has stopped for good, the pens of others may not stop and the books in the form of critical estimates, biographies etc. may still come out. Nevertheless the bibliography of an author, once well done, needs only to be supplemented from time to time to make it up-to-date and when a compiler takes up the work after an interval, his work becomes easier and is made possible because of such earlier works.

An author bibliography is invaluable for the extensive study of an author, for it shows the full coverage and variety of materials and sometimes throws much light even on the literary, social and historical background. Hence an author bibliography should be judged by certain standards such as coverage, level, purpose, accuracy and arrangement. That is to say, it should be considered to be good if it is exhaustive, meant for the scholars, annotated and properly arranged, compiled by an authority and brought out by some reputed publisher. The presence of such full-scale author bibliographies in any library indicates that the collection is very serious in purpose. A few outstanding bibliographies of some important authors are listed below :

Chaucer, Geoffrey

38.   Hammond, Eleanor Prescott. Chaucer : a bibliographical manual. New York, Macmillan, 1908. (Reprint N. Y., Peter Smith, 1933).

Dickens, Charles

39.   Hatton, Thomas and Cleaver, Arthur H. A. bibliography of the Periodical Works of Charles Dickens. Chapman & Hall, 1933.

Lamb, Charles and Mary

40.   Thomson, J. C. Bibliography of the writings of Charles and Mary Lamb : a literary history. Hull, J. R. Tutin, 1908.

Shakespeare, William

41.   Jaggard, William. Shakespeare : Bibliography. New Haven, Yale University Press, 1922.

Shelley, Percy Bysshe

42.   Wise, Thomas James. A Shelley library : a catalogue of printed books, manuscripts and autograph letters of Percy Bysshe Shelley, Harriet Shelley and Mary Wollstonecraft Shelley. 1924.

Wordsworth, William

43.   Wise, Thomas James. A bibliography of the writings in prose and verse of William Wordsworth. 1916.

The bibliographies issued by Thomas James Wise were privately printed and hence they are scarcely found except in large reference libraries.

44.   Huxley, Aldous
      Eschelbach, Claire John and Shober, Joyce Lee. Aldous Huxley : A bibliography (1916-1959). Los Angeles, University of California Press, 1961.

This is a bibliography of what Huxley has written and what has been written about him. This consists of two parts of which Part I seeks to record all his published writings and to present a bibliographical history of each and part II attempts to list all the critical and bibliographical studies and reviews of individual works. Explanatory information and occasional annotations are also provided under each entry. It is, on the whole, an authentic record of Huxley's literary life through 1959 and gives a fillip to Huxley scholarship.

45.   Mukherjee, Provatkumar.   Rabindra rachanapanji.
       Calcutta, Visva-Bharati.

I.   Selective or Elective Bibliography

As its name implies this records only the 'Best Books'.   This is useful to those who want to read only the best.   This also serves as a valuable book selection tool to small and medium-sized libraries. A librarian, however, requires to consult both comprehensive and selective bibliographies because when he is to locate a particular book or article, he must turn to the most complete record, that is, a comprehensive bibliography and when he is to find out which books and articles are most suitable for a particular purpose, he must refer to a selective bibliography.   But though both the kinds are necessary, it is perhaps the selective bibliographies that are more important to him because they help him in choosing the stock of books on their recognised merit.   Now, selective bibliography may be either a record of past production or a record of current production of published materials or a more or less comprehensive record of both past and current publications.   That is to say, this may be either a retrospective or a current bibliography or a comprehensive one inclusive of both the past and the current items universally considered to be the best in the field.   The compilation of a current selective bibliography is undoubtedly easier than that of a retrospective one since it can record all bibliographical details including description, annotation and excerpts from standard reviews that are easily available with regard to current publications while the same are rarely found so far as the publications of the past are concerned. Some well-known examples are given below :

46.   Sonnenschein, W. S.   The Best Books :   a reader's guide.
       3rd edition. London, Routledge, 1910-35, 6v.

This is a classified bibliography recording more than 1000,000 items, with occasional brief annotations and is provided with an index of authors, titles and subjects.   It records valuable and important items including rare and obscure ones.

47.   Standard Catalogue for Public Libraries.
       4th edition. N. Y., Wilson, 1958.   Separate vol. for 1959-63 with Supplements.

This in an annotated list of books suitable for Public libraries. Wilson Company has also brought out similar other selective

bibliographies like Children's Catalogue and Standard Catalogue for High School Libraries.

48. Booklist, 1905—.
        Chicago, The American Library Association.

This is a semi-monthly (except in August when it is monthly) selective list of currently published books including fiction, children's books, U.S. government publications etc. which are suitable for the average public libraries and hence it serves as an ideal book selection tool for them.

49. Hoffman, Hester R. (ed.). The Reader's Adviser and Bookman's Manual. 9th ed. revised and enlarged.
        New York, Bowker, 1960.

This is an authentic guide to the best in print in different literary forms and subject fields such as literature, biographies, classics, drama, poetry, fiction, dictionaries and encyclopaedias, history, travels, science and philosophy.

50. Dickinson, Asa Don. World's Best Books : Homer to Hemingway.
        New York, Wilson, 1953.

This is a comprehensive list of three thousand best books from Homer to Hemingway covering a long period of three thousand years from 1050 B.C. to 1950 A.D. It includes such books as are, by consensus of expert opinion, considered to be the best of all literary output of the period stated above. All the three thousand titles listed in it have been arranged alphabetically by author with the most essential identifying facts about each author and a short description or evaluation of each work. There are however, chronological lists of authors and anonymous classics, lists of authors and anonymous classics listed by nationality and also lists of authors and titles classified by subject or literary form—all appended at the end. There is also a Title Index at the end. This is a highly useful guide for selecting for average libraries the best books in various literature of the world.

51. Smith, S. Seymour. An English Library : A Bookman's Guide. revised edition, London, Deutsch, 1963.

It is, in the words of the editor, "a sort of superior bookman's shopping list at its most modest level, and at its highest...a working bibliographical tool supplementing critical histories of English literature." Begun as a humble booklet during the Second World

War this has now developed into a full-fledged selective bibliography of English literature highly helpful to librarians, booksellers and personal book-buyers. This lists all the standard books from The Canterbury Tales upto those by modern writers who are dead but whose works are, by common consent, regarded as classics. Except reference works it contains practically nothing by living authors.

J. Personal Bibliography

A personal bibliography is different from an author bibliography in the sense that while an author bibliography is a list of writings of an author together with writings on his life and works by others, a personal bibliography is a list of writings by others on the different aspects of the life of a great man together with what he himself has written, printed and delivered in the form of oratory. Personal bibliographies are required in the case of such eminent men as great political thinkers, social reformers, savants and saints, soldiers and politicians, jurists and law-givers, renowned teachers and educationists and so on. Lives of such great men are rich mines to enthusiasts, learners and romancers who therefore, want to go deep down into them to acquire the great treasures of their lives in every detail. Unlike an author who is often an expert in one field a hero is generally an expert in many fields. A bibliography of such an eminent personality has therefore, to record materials concerning his manifold activities together with his writings, speeches, artistic work and so on. Two notable examples from the Indian scene are provided below :

52. Malaviya, Madan Mohan
     Kaula, P. N. A. Bibliography of Pandit Madan Mohan Malaviya, Varanasi, Banaras Hindu University, 1962.

This is a comprehensive bibliography on one of the great builders of modern India who has become the byword of the whole country for his contribution to the new cultural awakening of India, her social uplift and political freedom. This bibliography records all his writings and speeches and various other materials relating to his manifold activities. The items in this bibliography are arranged in a classified order and an index is provided at the end for easy reference.

53. Nehru, Jawaharlal
     Sharma, Jagadish Saran. Jawaharlal Nehru : A Descriptive Bibliography. Delhi, S. Chand & Co.. 1955.

This is a comprehensive bibliography on one of the outstanding men of this age and perhaps the greatest builder of modern India. This lists all his writings, writings about him by others and a detailed chronology of the significant events of his life. This is to say, this lists not only the books written by him and the works written about him but also the forewords he wrote to books, institutions he inaugurated, presents he received from various organisations and countries and so on. This is a highly useful bibliography, especially to those who want to learn all about Nehru and his ideas and their impact on the political, economic and social policies of modern India. This bibliography is divided into three main parts each of which is again subdivided into sections and sub-sections. All the items included in this bibliography are properly annotated. There is, however, a comprehensive Index at the end compiled on dictionary catalogue method.

K. Unit Bibliography

It is a list of different editions, adaptations, abridged forms, translations, dramatisation, versification, criticism etc. of a single literary work conveniently arranged in order to give a comprehensive picture of its literary excellence and popularity. A literary work is a literary unit since it expresses a complete thought of its author while the different editions of the same work appearing in different forms, issues and state as also its various adaptations, translations and criticism, dramatised form and the like are its bibliographical units. Now, if we are to compile a complete bibliography of a single work we are to list all the bibliographical units under the literary unit. That is to say, in the case of a unit bibliography we are to record under the original work different editions, adaptation, abridged editions, translations, critical works, reviews published in both national and foreign journals and various other books published on the work. It goes without saying that every literary work by every author does not deserve a unit bibliography. It is only in the case of such works which have roused scholars' curiosity by dint of their great literary merit, universal appeal and enormous popularity that unit bibliographies are compiled for the convenience of the scholars and researchers because such a bibliography gives every detail and all relevant information about an outstanding work in one place. The Arabian Night's Entertainments with its numerous adapta-

tions and translations, Sarat Chandra's 'Datta' with its dramatised version, translations and criticisms are examples of unit bibliography. Pulin Behari Sen's unit bibliographies of many of Tagore's works published by Visva Bharati are some other notable examples.

L.   Bibliography of Bibliographies

As its name implies it is a list of bibliographies of all types and in various subject fields. As the bibliographies in various subject fields have multiplied now a days the compilation of this kind of bibliography has become imperative : otherwise scholars and researchers will find it difficult to trace out from the vast mass of materials what they require. Such a bibliography traces out for the readers everything that has appeared on their chosen fields sometimes from the beginning of printing till our own times. Indeed this kind of bibliography is a remarkable achievement since it records not only the outstanding bibliographies and standard reference works, but also describes them in detail and evaluates them with care. This bibliography is also known as Bibliographic Index. Some well-known examples are listed below :

54. Besterman, Theodore. A world bibliography of bibliographies.
    4th ed. 5 volumes, Geneva, Societas Bibliographica, 1965-66.

This is the most comprehensive of all existing bibliographical indexes and the fruit of Besterman's toil for twenty years. This includes some 117,000 bibliographies in 49 languages published separately. Entries are arranged under approximately 16,000 subject headings and sub-headings in an alphabetical order. It is ' inclusive of all subjects, periods and languages". Entries are mostly in English with some in other European languages like French, Italian etc. Non-European coverage is however, extremely restricted. Though the alphabetical arrangement is convenient for quick reference, it does not come to much use to advanced readers. Moreover, it often brings together grossly unconnected topics like cancer and candles, canes and canoes and the like.

55. Bibliographic Index : a cumulative bibliography of bibliographies, 1937 to date.
    New York, H. W. Wilson.

It is an excellent work in the field since it records not only every author bibliography published since 1937, but also all current

bibliographies whether published separately or as part of books, pamphlets, bulletins and periodical articles and provides information about new editions and supplements. It is now published quarterly and cumulates into annual and multiannual volumes.

56. Besterman, Theodore. Index Bibliographicus.

  3rd ed. Paris, Unesco, 1952. 2 v. (Fourth ed. in progress, 1959—).

It is a highly useful directory of bibliographies and current periodical abstracts. These are classified by subject and country of origin. Volume 1 includes bibliographies in periodicals in the fields of science and technology while volume 2 lists those in the fields of social science, education and humanistic sciences.

57. Courtney, William Prideaux. A Register of national bibliography : with a selection of the chief bibliographical books and articles printed in other countries. 3 v. Constable, 1905-12.

It is an excellent work of reference. Though it is specially strong in English materials, its scope is wide and has international coverage. It indexes all bibliographies whether published separately or as part of something else. Its arrangement is alphabetical by subject.

58. Winchell, Constance M. Guide to Reference Books.

  8th ed., Chicago, American Library Association, 1967.

This is the most outstanding work to deal with bibliographies and reference books. The entries in it have been made first under broad subject divisions such as Humanities, History, Social Sciences etc., and then again subdivided by subject. Its chief merit lies in this kind of subject arrangement as also in its evaluative and well informed annotations. Though it displays a little bias for American publications by providing more details about them than about works of other countries, it does not thereby take away its international scope and coverage.

59. Walford, Albert John, Guide to Reference Material.

  2nd ed. 3v., London, Library Association, 1966-68.

This is the British counterpart of the American Winchell. This however, excludes some of the older works included in Winchell but includes a large number of bibliographies hitherto unknown or less known to the people. Its annotations are not only well-informed but also highly evaluative. Though it primarily lists bibliographies, it includes other works of reference as well. Of the three volumes

published in the second edition vol. 1 deals with Science and Techno-
logy, vol. 2 with Social and Historical sciences, Philosophy and
Religion and vol. 3 with Generalia, Language and Literature and the
Arts. Entries in it are classified by U.D.C., but there is an alpha-
betical index for easy and quick reference. Though it gives a little
more detail about British publications, it does not ignore the
important reference sources published in other countries. It is really
international in scope in spite of its English bias.

Reading List

Besterman, Theodore. *World Bibliography of Bibliographies*, Oxford
  Pergamon Press, 1967, pp. 123-126.

Chandler, G. *How to find out.* New York, Macmillan, 1963.
  Chapter 2.

Collison, Robert L. *Bibliographies ; Subject and National.* 3rd ed.,
  London, Crosby, Lockwood and Sons, 1968, ch. 12.

Avicenne, Paul. *Bibliographical Services throughout the World,*
  1960-64. Unesco, 1969.

Stokes, Roy. *Esdaile's Manual of Bibliography.* 4th revised edition
  1967. Chapter 12.

Larsen, Knud. *National Bibliographical Services, their creation and
  operation.* Paris, Unesco, 1953. (Unesco bibliographical hand
  book 1), pp. 10-50.

Linder, LeRoy H. *Rise of Current Complete National Bibliography.*
  N. Y., Scarecrow Press, 1959, pp. 12-31, 220-225.

Robinson, A. M. Lewin. *Systematic Bibliography : a practical guide
  to the work of compilation.* Bombay, Asia Publishing House,
  1966.

Robinson, A. M. L. *Systematic Bibliography*, 3rd ed. London,
  Bingley, 1971.

Ranganathan, S. R. *Reference Service and Bibliography.* Madras,
  Madras Library Association, 1940. vol. 1, pp. 452-456.

Shores, Louis. *Basic Reference Sources.* Chicago, American
  Library Association, 1954, p. 195.

Thomson, James. *The Librarian and English Literature.* London,
  Association of Assistant Librarians, 1968. Chapters 2-4.

Taylor, Archer. *History of Bibliography of Bibliographies.* New
  Brunswick, Scarecrow Press, 1955.

CHAPTER XV

BIBLIOGRAPHIES : MECHANICS OF COMPILATION AND METHODS OF ARRANGEMENT

"Every investigation must begin with a bibliography and end with a better bibliography."

—George Sarton

Bibliographies generally are of two forms—retrospective and current. A current bibliography, as its name implies, lists the records of all kinds currently published on a given subject while a retrospective bibliography maintains a comprehensive record of only the past production. In the case of a retrospective bibliography it is therefore, desirable that a date must be clearly laid down so that records published afterwards are not included in it. A retrospective bibliography can, however, be made current by bringing out from time to time or at regular intervals the supplements to the same. But whether a bibliography is current or retrospective the method of compilation is generally the same. If the field, for example, be vast and the materials available are too numerous to be included, it may be necessary either to reduce the period or to omit certain classes of materials altogether. Then again, whether the bibliography should be comprehensive or selective depends upon the size of the subject as well as the quantity of materials available on it. In case the bibliography is to be made selective the compiler should be himself a subject specialist or must consult an expert so that he may not omit any important item by mistake or on prejudice. At any rate he must not work on personal bias or out of ignorance. A selective coverage is useful only when it excludes no important material or leaves no big gap.

As regards the forms of materials to be included they may be books, pamphlets, periodicals, periodical articles, manuscripts, gramophone records, films and so on. To include all such materials may be exemplary, but in practice this is seldom done because the task is too titanic to be properly organized. For most of the bibliographies are generally confined to books and include no other form of materials simply because they are too numerous to be included.

In the case of a highly advanced field such as science and technology this should by no means be done. A bibliography of a highly advanced scientific field, Electronics or Atomic Physics, for instance, will lamentably fail to serve any useful purpose unless it records periodical articles on the subject because all current researches in any branch of science first make their appearance in learned periodicals and not in book form. In fact scientific books are very often out-of-date and as such they serve the research scholars no other purpose except that they provide them with accepted scientific knowledge. As the rate of development in the sciences is very rapid, researchers are to collect latest information on their subjects from current periodicals and abstracting journals. The periodicals are no less important even in humanities though researches in such fields are generally published directly in the form of books. In the case of an author bibliography or the bibliography of a locality or a personal bibliography manuscripts, that is, private papers and unpublished documents should also be included together with their location provided they throw some light on the subject.

Search for Materials

But whatever be the forms of the materials they are to be found out by search first and then arranged according to some logical principle. There are of course general repertories—the catalogues of great national and other libraries from which the bibliographer may easily collect the titles that deal with his chosen subject and thus form the nucleus of his bibliography. So far as retrospective bibliographies are concerned the titles can in most cases be drawn from the catalogues of large general libraries as well as from the catalogues of special collections. But as these cataloguee are often guides merely to books and not to any other material, indexes to periodicals may have also to be consulted because without them even a retrospective bibliography may sometimes turn to be hopelessly incomplete and inadequate. As regards current bibliographies the bibliographers will have to depend largely on current national bibliographies and other general lists, on the indexes to periodicals, on bibliographies of bibliographies and other special bibliographies, national union catalogues, trade catalogues and so on. In a word, a current bibliography must record periodically the current output of the printing presses as soon as possible. But as the materials are scattered in

different parts of the world it is obligatory of the part of the bibliographer to indicate their location particularly when titles are exceptionally rare. This will increase the value of the work greatly to the students and researchers. As regards location of periodical holdings this may now-a-days be determined with the help of Union Catalogues such as the World List of Scientific Periodicals (Great Britain), the Union List of Serials (USA), the London Union List of Periodicals (the libraries in London) and so on.

If is often suggested that the bibliographer should glean from firsthand resources and should not depend on secondary ones. That is to say, he must personally examine every item included in his bibliography and should by no means depend entirely on printed catalogues, trade lists and bibliographies because these secondary sources may contain errors. This may be an ideal work, but it is hardly practicable. It is almost impossible for a bibliographer to personally examine the enormous quantity of materials and hence he has to depend upon standard catalogues, trade lists and other bibliographies. In case of doubt he should examine the original document himself in order that he may make an accurate record and give a proper annotation.

Methods of Arrangement

After a bibliographer assembles his materials from different sources he must find a suitable scheme for arranging his entries. This scheme of arrangement is important because it makes all the difference between an unwieldy list of titles and a useful bibliography. Really speaking a bibliography stands or falls by merely its arrangement. There are of course different methods of arrangement, though no one method is suitable for all types of work. For example, while the classified arrangement is suitable for a subject bibliography, the chronological arrangement may be ideally suitable for the works of a single author. In fact what the method of arrangement should be depends upon the type of materials selected and the purpose for which the bibliography is constructed. Of the common forms of arrangement we may mention the following :

  (i) Classified
  (ii) Alphabetical subject
  (iii) Alphabetico-classed
  (iv) Chronological

    (v)   Annalistic
    (vi)   Alphabetical Author
   (vii)   Alphabetical Title
  (viii)   Dictionary
    (xi)   Place of Printing or Publication

(i) Classified Arrangement

In classified arrangement items are arranged according to some recognized scheme of classification and assigned class numbers. In this method entries are made according to notation. In both INBS and BNB entries are made according to the scheme of Dewey Decimal classification. The classified arrangement has a great advantage. It brings like subjects together and related subjects closer. Scientists prefer this arrangement to alphabetical, chronological or any other method. Most of the bibliographies on scientific subjects are, however, arranged according to Universal Decimal Classification. A compiler of bibliography on a scientific or technological subject may sometimes translate a numerical notation into verbal language, using bold type face, such as,

<div align="center">

621·3—Electrical Engineering.

</div>

It is needless to point out that an author index and sometimes even title index should be appended to a classified bibliography to facilitate reference. It will also be very much helpful if the main outline of the classification scheme followed in the bibliography be set forth at its beginning.

(ii) Alphabetical subject

In alphabetical subject arrangement each entry is made alphabetically according to the specific subject heading assigned to it and not according to subdivisions of a wider subject. Hence the compiler must first determine the specific subject-headings so that no inconsistency arises. This is a straight forward arrangement, such as,

          Economics—Financial
          Economics—Labour
          Economics—Land
          Economics—Land—Common land
          Economics—Land—Private land

This arrangement has some inherent disadvantages. First, ambiguity may arise with regard to subject headings. Secondly, as

subject headings are to be selected from natural language which is very rich in synonyms, the compiler has to correlate one term with another. But too many cross references are likely to be tiresome to users. This arrangement, as such, is suitable for some limited bibliographies.

(iii) *Alphabetico-classed or Subject-classed*

It is the most common form of arrangement found in bibliographies. It is in fact classification without notation. It differs from the classified arrangement in this that in this system items are assembled not according to any scheme of classification but under some suitable broad divisions of the subject according as the bibliographer likes and then again, under suitable subdivisions of each broad division, if that is necessary,—all alphabetically, e.g.,

    Social Sciences
        Economics
        Financial
        Labour
        Land
        ,,   Common
        ,,   Private
        ,,   Public
      Political Science
      Statistics

In subject-classed method the divisions are made more detailed as in classified arrangement, such as,

      334 Cooperation and Cooperatives
      334·6 Producers' Cooperatives
      334·68 in Professional industries
      334·682 in specific industries
      334·683322 in mining engineering

In alphabetico-classed arrangement we may get the same result in some 2 to 3 stages. If we take the above example, we get

      Cooperation and Cooperatives
      Producers' Cooperatives
      Cooperatives in mining engineering

Alphabetico-classed bibliography should always be provided with an author-title index for the convenience of the users. Students of humanities and social science and ordinary users favour this method of arrangement.

(iv) *Chronological*

The chronological, that is, arrangement according to periods is most suitable for such subjects as the history of a country, religion and place, the history of the development of a subject and so on in order to trace the development as reflected in their literature. In the case of an author bibliography this kind of arrangement is most suitable because it reveals clearly how the genius of the author gradually developed culminating in the height of excellence. A bibliography on a historical movement or period or event likewise demands chronological arrangement because this will reveal its progress from its beginning till its last phase.

(v) *Annalistic arrangement*

This is a year-by-year arrangement of documents listed in a bibliography. That is to say, the documents are listed in the order in which they were published.

This arrangement is suitable for the progress of a movement, for the progress of an invention, for the works of an author, the printing output of a press, a particular classic with various editions and unit bibliography. This helps a user to have a complete idea about the general development of his subject through the decuments arranged according to the order of their publication. This also helps him to locate a copy easily.

(vi) *Alphabetical Author*

In alphabetic author arrangement entries are made directly under the names of the authors which are arranged alphabetically. This kind of arrangement practically serves no useful purpose except in very rare cases. This arrangement is followed in such cases where the names of the authors are of prime importance, as for example, Redgrave and Pollard. Short title Catalogue of books, printed in England, Scotland and Ireland (1475—1640).

But this kind of arrangement does not indicate the relationship between the different aspects of a subject. Yet this is the arrangement generally found in a brief bibliography appended to books.

(vii) *Alphabetical title*

In this arrangement entries are made alphabetically by titles. This serves no useful purpose and hence in compiling a bibliography this method is seldom followed. Under the names of the authors

their works may be arranged alphabeticaly, but arrangement of titles alphabetically with the names of the authors after them is no better than a booklist.

(viii) *Dictionary*

Dictionary arrangement implies merging of the entries under the name of the author, translator, editor, title, series and subject for each item included, in one alphabetical sequence. This may be useful for library catalogues but this is absolutely useless for bibliographies in which stress is laid either on author or on subject, but never on both of them.

(ix) *Place of Printing or Publication*

In this method place name comes first in compiling old and rare books. The arrangement by the Place of Printing or Publication is now almost obsolete though this was the most suitable method of listing the incunabula and other exceptionally rare books in the past. The well-known 'Proctor order' was based on this system. "Catalogue of Books Printed in the XVth Century" which was published by the British Museum is a well-known Book Rarities Bibliography in which entries are arranged first by countries and then by places. An author index has also been provided in it.

Thus we see that all the above arrangements have their merits and demerits and none of them is ideal for all types. Bradford, for example, favours classified arrangement and considers alphabetical subject arrangement unsatisfactory on the ground that the subject assigned to an entry may be ambiguous and the placing of an entry under a subject may have little or no relation with the subject. Secondly, the selection of proper terms from among the synonymous ones becomes very difficult in this system and it requires a number of cross references. Lastly, the scattering of related subjects e.g. Animal and Zoology and juxtaposition of unrelated terms such as cancer and candle cause great difficulty in tracing down the items on a certain topic. This necessitates cross references. As regards classification schemes, they also got clogged very soon because of the emergence of new and new subjects. Nevertheless, classified arrangement is suitable for subject bibliography, especially for bibliographies of science subjects and subjects of technology. Alphabetico-classed arrangement is suitable for most of the bibliographies of social science and humanities, alphabetical subject arrangement suits

selective subject bibliography, alphabetical arrangement by author or title is suitable for trade bibliography, chronological arrangement for unit bibliography, bibliophilic bibliography and bibliography of history and place of printing or publication, for incurabula and book rarities bibliographies. But the difficulty may arise in the case of a bibliography of a special subject. Even none of the conventional classification schemes like the Dewey Decimal Classification, Universal Decimal Classification, Brown's Subject Classification, Bibliographic Classification of H. E. Bliss, the Library of Congress Classification and the Colon Classification of Dr. S. R. Ranganathan may prove to be inadequate for the bibliography of a special subject because it may so happen that the subjects which were desired by the bibliographer to be closely related for his purpose are found to be scattered in the scheme and hence if he follows such a scheme, his bibliography will fail to serve any useful purpose. What is, therefore, desirable is that he must evolve in such cases an arrangment entirely his own befitting his purpose instead of arbitrarily fitting it in any of the conventional schemes simply because it is ready at hand.

But whatever be the arrangement every bibliography worth the name except of course the alphabetical author form or dictionary form should be accompanied by an index. Author indexes which include translators, editors, etc., should be made with reference to item numbers. Title indexes are seldom required except in author bibliographies. When bibliographies except those of pure literature are arranged according to classified scheme, subject indexes are essential, but they should refer only to class numbers and not to individual items.

Method of Bibliographic Compilation

From the above it is evident that to compile a bibliography worth the name requires both skill and labour. Various steps that are necessary in the work of compilation are, however, given below in a tabular form for the convenience of all concerned.

1. Definition of the subject. This can be collected from a general dictionary, an encyclopaedia, a standard subject dictionary and from a standard texbook.

2. Scope of the subject. It depends upon some factors such as
   (a) Period : It should state the time covered and also indicate if it is current or retrospective.

(b) Form

The compiler should also state if he should consider the physical form or the inner form of the documents, periodicals, encyclopaedias, dictionaries, books, microfiche etc.

(c) Level

The compiler should state clearly if the bibliography he is compiling is meant for ordinary readers or scholars and researchers.

(d) Language

It is also his duty to decide which languages his bibliography will cover, whether it should be unilingual or bi-lingual or multi-lingual.

3. Items of Information

As regards bibliographical information required for entry, that depends primarily on the nature of the documents as well as the purpose of compilation. If it is a bibliography for ordinary readers brief bibliographical information is sufficient. But it should be descriptive in the case of bibliographies for scholars and researchers. Nevertheless we can follow some standards observed by some standards institutions.

4. Arrangement

There are some standard methods of arrangement which I have discussed earlier. Arrangement may be classified, chronological, annalistic, that is, by date of publication and alphabetical by author or title but this shows no collocation of subjects. At any rate, the method of arrangement depends upon the purpose of compilation and the nature of the documents.

Preparation for Compilation Work

Information is generally collected in slips or cards because that helps in the arrangement.

After the entries are made in the bibliography the compiler or compilers are to affix a preface to it, stating therein the scope and arrangement. They should also supply list of abbreviations used in their work and also Index.

Let us now consider a few important classes of bibliography and find out the leading principles governing their compilation.

A. Author Bibliography

In the preparation of an author bibliography the role of the bibliographer should not be merely a mechanical one. He should have some liberal education and thorough knowledge of the history of the times in which the author lived and flourished. It should be borne in mind that an author is not merely an individual ; he is in fact a product of society. Hence the bibliographer must acquaint himself with the social, political, religious and cultural conditions of the time of the author. This knowledge will stand him in good stead in preparing the bibliography. Then comes the question of arrangement.

The bibliography of an author generally follows the usual library catalogue arrangement with variation and adjustment where necessary. Such a bibliography may be either descriptive or enumerative. If the author is a celebrity in the field of literature or a pioneer in the field of science the bibliography should be descriptive and the arrangement chronological : otherwise alphabetical arrangement will be sufficient. The following arrangement may be suitable in majority of cases :

1. Sporadic or regular contribution to Ephemera
2. Individual publications in book form, the term 'book' including the slender pamphlets
3. Collected works, complete or nearly so (with full analysis of volumes)
4. Smaller collections (two or more works published in one volume)
5. Selections from works
6. Special editions brought out from time to time on festive occasions such as Centenary and other celebrations
7. Works of other writers translated by the author
8. Books, Symposia etc., edited by the author
9. Biographical and critical works on the author
10. Translations of the works of the author
11. Review by the author
12. Miscellaneous, i.e. materials that cannot be fitted into any of the above headings

Earlier authors may require yet one more heading namely Spurious or supposititious works. On the whole the business of a compiler of an author bibliography should be to give as complete a picture of

the whole of the author's works as possible. But in all cases first editions of works should be mentioned first and should subsequent editions prove to be of sufficient value they should follow the first. Entries should be made under each heading alphabetically by the title. As regards translations made by the author they should be arranged under the original alphabetically according to the language of the translation. But in all cases contribution to the ephemeral all through the life of the author should precede even separate or individual works and there is much justification for it. For it is often found that most authors build up their reputation by contributing to periodicals and blossom out into book publication a little late in their literary career. Charles Dickens is a classic instance in point. Then come one after another the above headings though there is nothing sacred about the above order. One may, however, change it according to necessity. In fact there are authors who require much modified treatment. For example, if the author is a prolific writer, exploiting various forms of literature entries should be made under each of the forms—poetry, novel, drama, short story, essay etc. Poet Rabindranath Tagore is a famous instance in point.

The section of individual works of the author should as a rule be followed by an annalistic arrangement of collected works again subdivided by form division. This may be followed by special editions brought out from time to time if the author's works have fallen into the public domain. This section should again be followed by selections from the author. The bibliographer will have also to codify the biographical materials about the author and the biographies of the author. Here care should be taken to include correspondence, diaries, authentic anecdotes and other related materials. The manuscripts as well as printed materials should be equally taken notice of. The biographical materials should be followed by a chronological arrangement of the biographies of the author. In the case of a great literary personage it may be necessary to include a section on the critical studies of the author arranged on the basis of the year of their publication. In this section contemporary criticism should be given precedence.

When the author has left manuscripts in original, the bibliographer's duty becomes doubly responsible and a very careful collation and description of these materials becomes obligatory. Fortunately in modern times most writers have got their manuscripts

in typed script form and hence collation presents no difficulty. But in the case of older authors collation is of great importance. It must be remembered that the manuscript is the basic authority in all cases of doubt. The listing of manuscript materials should precede printed matter and the location thereof should be indicated. It is also possible that some bibliographers prefer not to mix up manuscripts with printed matter and provide a separate section for the manuscripts. If there are any editions in facsimile they should be mentioned towards the end of that section.

Lastly, if the author is a great celebrity who has many of his works translated in various foreign tongues a separate section may be affixed at the end with the entries thereof under different languages arranged alphabetically and then under each language, by date of publication. If this method is followed the bibliography thus formed will be a full and complete one.

But if the author is a pioneer in any of the natural, applied or social sciences a strictly annalistic i.e., year by year arrangement will be of great value. If necessary, periodical articles should be segregated from individual or separate works because periodical articles in the case of scientists often contain more up-to-date information than books that appear as a rule much later with additions and alterations. As regards arrangement under separate works entries are generally made alphabetically by title while arrangement under periodical articles should be arranged annalistically with reference to the periodicals concerned.

It should, however, be borne in mind that no arrangement, however perfect, can serve all purposes. Indeed exceptional circumstances may require a completely different approach. A bibliographer armed with wide experience, comprehensive knowledge of his subject and keen commonsense can easily decide for himself the method of arrangement that will suit his materials and serve his purpose well.

B. Personal Bibliography *compilation of*

A personal bibliography is a list of writings on the different aspects of the career of a hero by others together with the works he may have written himself. Such a hero might have been a great soldier or a great politician, a famous law-giver or an able administrator, a reputed physician or an eminent writer, or he might have distinguished himself in more than one sphere of activity. That is to

say, instead of being a specialist in a single field he might have been a specialist in many fields and left the stamp of his versatile genius in many spheres. Napoleon, for instance, was at once a great soldier, a great law-giver and a great administrator ; Sir Winston Churchill was great both as a politician and a writer and Leonardo da Vinci was a prodigy in many fields like art, music, mathematics, engineering and so on. Such historical personages have naturally given rise to a good deal of literature concerning their manifold activities and a bibliography of any one of such eminent personalities must, therefore, record all such materials. But these great men have at least one quality in common i.e., "Between birth and death they exist in the dimension of time" as Esdaile has put it. Hence the most useful arrangement in such cases should be the chronological one under different periods and phases of the life of the hero. In case the hero is prominent even as a writer or as an artist all his literary or artistic production should also be listed, though they should be relegated to the section of Secondary Activities. If, however, he has written only letters, diaries and dispatches, they should be regarded as sources of his biography rather than of literature and hence they should be placed under General Biography which should at all times form the first section in the arrangement. The life of such national or international heroes may also be divided into two halves : Private life and Public life, the former covering his love, marriage and family and the latter comprising the rest of his activities, social, political and the like. Hence the former should also find a suitable place in the scheme of arrangement. The following order may be taken as the basis of arranging a personal bibliography :

1. General Biography
2. Periods and Phases
   (a) Childhood
   (b) Formative period
   (c) Public life and career
   (d) Later years
3. Private life
4. Significant episodes (annalistically)
5. Contemporary opinions and obituaries
6. Secondary activities
   (a) Literary works
   (b) Artistic production
   (c) Oratorial works

C :BTP (III)—28

Sub-arrangement of items should in all cases be annalistic, that is to say, all books and records should be arranged under each heading by their dates of publication.

C. Bibliography of a Locality

Most local libraries maintain local collections, especially if the locality is rich with a hoary past. The catalogues of such local collections, therefore, provide the first sources of materials on the subject and this makes the search for materials rather easy. But what types of materials should be included and what method of arrangement should be followed for organising the work ? This is the question that must be solved first before undertaking the project. Whatever be the types of materials there is no doubt that the main principle of arrangement should always centre round topography and chronology. As regards works written by resident authors and speeches and sermons delivered in the locality on general subjects, they may be left out if they are mere literary works having no bearing upon the locality. The bibliographer may also safely discard the locally printed works if they have no bearing upon the locality. But a record of the early presses of the locality and their products should form an integral part of the arrangement provided they throw some light on the cultural history of the region. Biographies of the inhabitants of the locality who have had particular association with social and cultural events, industries etc. should naturally figure in the bibliography. The following categories of materials are generally included in such a bibliography : History, Geography, Gazetteer, Guide books, Maps, Prints and Pictures, Biographies of eminent inhabitants, Local govt. records, Reports and Publications of cultural, educational, industrial and religious organizations, Newspapers, Magazines and Periodicals.

The outline given below is suggested for a local bibliography :

1. History of the place
2. Works containing substantive references to the locality
3. Geography
4. Gazetteer
5. Guide Books
6. Directory
7. Maps
8. Prints and Pictures

9. Early presses and their products
10. Newspapers
11. Periodicals and magazines
12. Local govt. records
13. Reports and Publications of various cultural, educational, industrial and religious institutions
14. Speeches delivered by prominent persons relating to the locality
15. Biographies of eminent inhabitants of the locality.

As regards entries, documents can be listed under each of the above headings on the basis of their dates of publication or they may be classified according to a scheme of classification.

A bibliography prepared on the model suggested above will certainly be a reasonably comprehensive list running into hundreds of entries on a wide variety of topics related to the locality. The order may however, be changed according to necessity.

Bibliography of a modern city or town

The bibliography of a modern city or town differs from that of a larger unit. It should be borne in mind that a town or a city is not merely a geographical name. It must, therefore, be considered in the context of its development historically, culturally, politically, economically and industrially. Hence all materials concerning the above should be collected and listed. These materials should then be sub-divided according to topography, natural history, political history, its economic development, its industry, municipal or local self govt. and cultural aspect. The general directory of a city or a town contains information regarding address of prominent persons living in the city, commercial information listing firms separately under types of business, official information regarding administrative authority, local (municipal) authority, educational and cultural information listing schools and colleges, societies and other institutions and so on. Below is a suggested outline for the bibliography of a modern city or town :

1. Administrative (Municipal services)
2. Architecture
3. Art (local artists, picture collections and Art galleries)
4. Cinema

5. Description : Directories, Gazetteers, Guide Books, Illustrations and Maps.
6. Education : Schools, colleges & universities
7. Gardens & Parks
8. History (including biographies)
9. Industry and trade (by nature of business)
10. Libraries
11. Literature
    (i)   Local authors.
    (ii) The city in literature.
12. Museums
13. Politics
14. Printing
15. Religion
16. Sociology
17. Sports
18. Theatres and other entertainment
    (i)   Drama
    (ii) Concerts etc.
19. Zoo

Entries under each subdivision should as a rule be annalistic, that is, the documents under each of the above headings should be made on the basis of the year of publication.

Subject Bibliography
(In Humanities and Sciences)

There is such an increasing and almost frightful and confusing abundance of books and other analytical materials now-a-days in every subject field in Humanities and Sciences that it is almost impossible even for an assiduous scholar to keep track of them all without a proper bibliography on that subject. A subject bibliograpy enables scholars and researchers interested in the subject to know what materials are already there on the subject, how far knowledge has been unfolded and how far research work has been done. It thus enables a researcher to decide wherefrom he will start working. This saves his time and labour and prevents duplication of work. It also helps a scholar to get information on the fundamentals as well as the latest development in the field. This may also serve as a conventional tool even to the general readers in as much as

it points out to them the basic reading materials on the subject. It is for all these reasons that a subject bibliography is so essential in our days in any field, particularly in the ever expanding subjects in the realm of science and technology.

A subject bibliography may be comprehensive or selective; it may relate to an enormously vast subject or to a part or minute subdivision of it. Physics, for example, may be divided into Pure and Applied, and again into Light, Heat, Sound, Properties of matter, electricity and so on. A fine distinction may again be made between Relativity and Atomic Physics. Now, while the bibliography on Physics covers a wide field and demands the inclusion of an enormous quantity of materials, that on Atomic physics is confined to a highly restricted field and a specialised branch of the subject and consequently the materials to be included in it will be naturally fewer and of specialised nature. In special libraries bibliographies are generally compiled on such special aspects of a broad subject to meet the demand of the special type of readers. Such bibliographies are better known as 'microcosmic' bibliographies, each being a separate tool in itself. As regards general bibliographies they may require different types of division altogether. For example, writings on Art should normally fall into Oriental Art and Western Art and also perhaps into Primitive Art. Western Art again may be divided according to periods such as classical, medieval and modern while Primitive art may be divided according to regions where it flourished such as Africa, America, Asia etc. Each period or area may further be sudivided into Sculpture, Architecture, Graphic Ar and so on. Such a bibliography should follow classified arrangement since the subject follows the subject schedule.

In the case of a bibliography of pure or applied science the arrangement should be always classified though the internal arrangement under each subdivision should be chronological and not alphabetical under author. The mere alphabetical author arrangement under each class will practically serve no useful purpose in such cases because it can neither trace the trend of the development of the subject nor help an inquirer to find out what he requires unless he has heard of the author's name. The chronological arrangement, on the otherhand, helps two classes of readers—the antiquarians who want to know of the old books and records and the modernists who seek the new.

As regards materials to be listed they should cover books, pamphlets, periodicals, periodical articles and any other material relevant to the subject. The primary object of a bibliography, in the words of Bourton, is to list "all references available of material written on or around a certain subject".[1] While discussing the comprehensiveness of bibliographical subject coverage Dr Ranganathan said that a bibliography to be universal should include "all published materials, whether books or parts of them or periodicals or services or articles in them or combination of them on all subjects, in all languages, in all countries at all times".[2] In the fields of art and science biographies of artists and scientists respectively should also be included. Though most of the classification schemes treat biography as a separate class, in the preparation of a bibliography on any science or art subject it should be included in the history of the subject itself. Periodical articles will naturally form a bulk of an enormous subject like any branch of science or art and hence the titles of periodicals in which they occur should be given in some accepted form of abbreviation.

For the sake of convenience and systematic arrangement the bibliography of a vast subject may be divided into two groups —(a) basic bibliography comprehensive up to a fixed date and (b) current bibliography recording the literature of a given period, frequently one year at a time. Arrangement under each part should be more or less the same. The order should be as follows : General works, works on the principal divisions and if necessary, also on subdivisions of each division. All materials irrespective of books, pamphlets, periodical articles should be arranged in the same sequence either alphabetically or chronologically under different subdivisions of the subject according to necessity and purpose. The compiler can however, add to the basic bibliography of the subject the current lists and thus prepare a comprehensive record of the whole field. A comprehensive bibliography should record books, pamphlets, periodical articles and other relevant materials. It should give full and definite information about each item included and should be so arranged and indexed that works can be found out quickly by author or by broad or specific subject. If it is to serve

[1] R. Bourton. *Subject Bibliographies and their Compilation,* ASLIB Proceedings, 11 : 6-7, January 1959.
[2] S. R. Ranganathan. *Universal Bibliography and its substitutes.* Libri, 2 : 292, 1953.

as a critical guide to the literature on the subject, annotation should also be given.

There may still be different other kinds of *subject bibliography*, as for example,

(i) Selective bibliography containing only selected documents on the subject.

(ii) Anticipatory subject bibliography which is prepared on anticipation that a demand for such a subject bibliography is likely to arise soon.

(iii) Subject bibliography on demand which is compiled on request from readers.

(iv) Unilingual subject bibliography which lists documents in one language only.

(v) Multi-lingual subject bibliography which lists documents on the subject in different languages.

(vi) Subject bibliography with abstract. It is of great use to the readers. The abstract again may be of two kinds :

    (a) Information abstract

    (b) Indicative abstract.

The information abstract gives full information about the document while the indicative abstract merely draws the attention of the user to the document.

Steps in the compilation of a subject bibliography

Before the actual work of compilation is undertaken it is necessary that subject study is made. This will help the compiler to differentiate the subject from other subjects and to know how far the subject has developed. This may be known through the definition of the subject and its divisions and subdivisions. To compile a subject bibliography one need not always be a subject specialist, but one must know the subject thoroughly, must know its highways and by ways. In order to prepare a subject bibliography a compiler should go through certain stages, e.g., (a) Definition (b) Division/ Subdivision, (c) Contributor/Contribution, (d) Ref. works (e) Perio- dicals, (f) Bibliography of Bibliographies. That is say, he should determine the scope first and then fix the period, areas and languages he wants to cover and what types of materials he wants to include. He must consult bibliography of bibliographies in order to discover if any bibliographic work has already been done on the

subject. He must as a rule also determine the sources to be searched and tabulate the subject headings to be used. Subject headings can, however, be very easily determined by scanning the different indexes, printed bibliographies, monographs and various abstracting services.

Then begins the actual work of searching. The sources which provide information regarding the pertinent items are generally national union catalogues, catalogues of large libraries, indexes to national bibliographies, reliable trade bibliographies, indexes to Periodical literature, printed bibliographies both current and retrospective, on the subject or on closely related subjects, indexes to government publications, collection of historical sources, bibliographies of bibliographies and encyclopaedias and reference works devoted to the subject and so on. All these sources should be consulted under the already determined subject headings which should be both complete and accurate. The compiler may then copy out the pertinent citations and give their location. In case of doubt he may have to visit the library where the item in question is available. If the item be a manuscript this may have to be even edited for reproduction. Additional factors involved in compilation are annotation, editing and indexing of bibliographical lists. As regards annotations they may be of various types and levels. They may be informative or identifying when the title does not describe the item or indicate why the item is included. They may be also critical and evaluative describing the merits of the item described and they may be abstracts giving enough of the contents so that the scholars may decide if they require to read the original. So far as lay-out for entries is concerned there is no universally accepted standard. In fact description varies according to the nature of the material and the purpose of compilation. For a simple enumerative bibliography the briefest description is sufficient provided it identifies the item described. The lay-out laid down by A.L.A. Cataloguing Rules for Author and Title Entries is sufficient for a great majority of systematic bibliographies. This lay-out consists of such four basic elements as author, title, imprint and collection and some other secondary elements like series, price, location etc. The following items are generally included in a bibliographical entry :

    (i)   Class no. ,
    (ii)   Feature heading

(iii)   The author's name
(iv)   The title of the book as it appears on the title-page
(v)   The edition, if it is other than the first
(vi)   The place of publication, year of publication and publisher's name.
(vii)   The Volume number if it is a multi-volumed publication.
(viii) The number of pages.
(ix)   Illustration.
(x)   Size.
(xi)   Series.
(xii)   Price and the location.

Annotation may also be necessary in the case of certain bibliographies. This may be either descriptive or evaluative or critical. A descriptive annotation merely gives us an idea about the intellectual content of the document. An evaluative or critical annotation, on the other hand, describes whether the author has been able to fulfil his aim and purpose of writing the book and also ascertains its value by comparing it with other works on the subject. Bibliography requires the evaluative or critical annotation rather than the descriptive kind which is often used in library catalogue.

It is only in the case of descriptive bibliographies that the entry requires to be further expanded, that is, the fullest possible description of entries with more bibliographical details is required.

As regards entries they may be made alphabetically by author or title or subject, chronologically, geographically or in a classified manner. But neither of these arrangements is fully adequate and complete in itself and hence indexes are required for quick reference.

An author bibliography and a subject bibliography have been compiled and appended to here so that students aud future bibliographers may get some practical guidance about how bibliographies should be compiled.

Author Bibliography
(Dr. S. R. Ranganathan)

A bibliography of his writings on Library Science published between 1950 and 1960.

1950   Library development plan, thirty year programme for India with draft library bills for the union and the constituent states. Delhi, University of Delhi. 462p. 22cm. (Delhi University publication, Library Science Series, 2).

1950   Library tour 1948, Europe and America ; impressions and reflections. Delhi, Indian Library Association. 220p. 22cm. (Indian Library Association, English Series, 1).

1951   Library personality of India. (Library Journal. Vol. 76 : 1951 ; pp. 155-7).

1951   Library Services in South-East Asia ; India. (UNESCO Bulletin for Libraries. Vol. 5 ; 1951 ; pp. 384-5).

1951   My pre-view of India's library personality. (Educational review. Vol. 57 ; 1951 ; pp. 161-3).

1952   Library book Selection. Delhi, Indian Library Association. 276p. 22cm. (Indian library Association, English Series 5).

1952   Library personality of India. (Annals, Indian Library Association. Vol. 2 ; 1952 ; pp. 284-9).

1954   IFLA : what it should be and do. (Libri. Vol. 5 ; 1954 ; pp. 182-9).

1954   Library's role in the regeneration of India. (*AICC Economic Review*. Vol. 5 (nos. 18, 19) ; 22 Jan. 1954 ; pp. 16-7).

1955   Rationalisation in Library Service and International Co-operation. International Congress of Libraries and Documentation Centres. Vol. 3 ; 1955 : pp. 38-43).

1956   Library Feast in Renascent India. (Amrita Bazar Patrika ; 13 Apr. 1956).

1956   Public Library Development in India. Granthalay. Vol. 2 ; no. 4 ; 1956 ; pp. 18-20).

1958   Library Development in India. (Library Herald. Vol. 1. 1958 ; pp. 143-50).

1958   Library Personality and Library Bill : West Bengal. Calcutta, Bengal Library Association, English Series, 1).

1958   Library Renaissance. (Granthapala. Vol. 1 ; 1958 ; pp. 31-3).

1958   Library Service in India and Abroad. Madras, South India Saiva Siddhaanta Sangam. 28p. 22cm.
Speech on the occasion of the opening ceremony of the Maraimalai Adigal Library on 24th August 1958.

1959   Libraries and Library Schools in America and Japan. (Library Herald. Vol. 1 ; 1959 ; pp. 201-3).

1960   Library Development Plan with a Draft Library Bill for Kerala State, Trivandrum. 191p. 24cm.

1960   Library future of Maharastra. (Granthapala. Vol. 2 ; 1960 : pp. 20-1).

1960   Research in Library Science in Madras. (Hindu : Magazine Section. 17 July 1960).

Subject Bibliography
A selective bibliography on Bibliography (Subject) published abroad since 1960

1960   Barnard, Cyril Cuthbert
Bibliographical citation. 2nd ed.
London, James Clarke and Co. 20 p. bibliog. 21 cm.

1961   Larsen, Knud
On the teaching of bibliography with a survey of its aims
and methods. Copenhagen, Royal School of librarianship.
27 p. 23-5 cm.

Poynter, F N L
Bibliography :   Some achievements and prospects.
Berkeley, University of California. 25 p. 22.5 cm.

Schneider, Georg
Theory and history of bibliography ; tr. by Ralph Robert Shaw.
New York, the Scarecrow press. xiv, 306 p. bibliog. 21.5 cm.

1962   Jackson, William Alexander
Bibliography and literary studies. Berkeley, University of
California, 16 p. 23 cm.

Staveley, Ronald
Notes on subject bibliography. London, Andre Deutsch,
144 p. 18.5 cm.

1963   Benge, Ronald Charles
Bibliography and the provision of books. London, Associa-
tion of Assistant Librarians, 240 p. bibliog. 21.5 cm.

Hurt, Peyton
Bibliography and footnotes : a style manual for college and
university students. Rev. and enl. by Mary L. Hurt Rich-
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BIBLIOGRAPHIC ORGANIZATION

"You only, O Books, are liberal and independent ;
You give to all who ask."

—Richard de Bury

What it means

There is now such a frightful abundance of books and other records of communication that it has now become virtually impossible for the librarians to meet the bibliographic needs of scholars and researchers, artists and technicians and the general public. Hence there is the need of some quicker method by which the knowledge contained in the whole mass of existing literature can be easily transmitted to their users and the way by which this can be done is not only to organise these materials but also to make them physically available to their consumers. This is what is known as Bibliographic organization. Bibliographic organization naturally does not include in its scope the great bulk of the media of mass communication such as radio, newspapers, motion pictures etc. unless news and views provided by them are available in the form of some historical documents.

Bibliographic Organization and Bibliographic Control

It is of course difficult to say what is exactly meant by bibliographic organisation. Different authorities have given different definitions of which the one given by V. W. Clapp very nearly hits the mark. "Bibliographic Organisation may be defined", he says, "as the pattern of effective arrangement which results from the systematic listing of the records of human communication".[1] This implies that the records of human communication of all kinds whether they are in written or printed form should be so effectively arranged that they serve some definite purpose. Bibliographic organization, as such, is not much different from bibliographic control since the latter has also been defined in the UNESCO/ Library of Congress Survey as "the mastery over written and published records which is provided by and for the purposes of Bibliography".[2]

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[1] *Bibliographic Organization,* p. 4.
[2] *Bibliographic Services, their present state and possibilities of improvement,* p. 1:

Bibliographic organization and bibliographical control are for all intents and purposes synonymous. For if the former means the organization of different kinds of reading materials in different branches of learning in order to make them accessible to all seekers of knowledge the latter means effective control of all published and unpublished records on all subjects and in various languages and forms through systematic bibliographies for the convenience of the readers all over the world. Really speaking bibliographic control is nothing but ensuring effective access through bibliographies.

Need of Bibliographic Organization

There was a time when it was possible for a diligent scholar virtually to read all records of learning. Though this may sound a bit exaggerated, there were really periods in human history when the number of records was so insignificant that an assiduous scholar might read almost the whole of those records which concerned him most. Naturally there was no need of bibliographic organization or control in those days. But in the modern age the number of publications is almost appalling to every reader and hence it is not possible even for a voracious reader to read all the publications even on his chosen subject. It is not only the frightful number of publications alone that has added to our trouble, the wide variety of their characteristics has added no less to our confusion. Indeed knowledge today has developed and widened so much in almost every branch of study, particularly in science and technology that new and new subjects have sprung up many of which were not even heard of half a century ago. To harness these new materials and to bring them together according to their characteristics and distinction of subject-matter is an uphill task with which bibliographic organization is primarily concerned to-day. Then again, a scholar or a researcher to-day cannot be content with the publication of a locality or of his own country. As similar kinds of publications may have appeared in other parts of the world, they have to be grouped together for his sake. But the universality of publications presents a baffling problem in their listing. It is for all these reasons that bibliographic organization is so vitally needed in the interest of research and higher learning.

Materials and Methods of Organization

The records of knowledge to be submitted to bibliographic control cover a wide variety of materials such as books, periodicals,

government documents, newspapers etc. which are generally contained in libraries or similar repositories because it is with such material that the readers are generally concerned. But these materials may be found in more than one country and they may have appeared in more than one language. Hence for the sake of comprehensiveness bibliographies must leap over the barrier of nationality and language. To be of real help and use they must also locate for the scholar the source where the original work or a copy of the said work is obtainable.

So far as lists themselves are concerned they may be made by taking into consideration the commonness of the subject-content or the subject relevance of the materials or the commonness of their literary or physical form or the commonness of their purpose or the commonness of origin or even the common characteristics of their presence in a particular library or a place. That is to say, there may be subject bibliography, author bibliography, national bibliography, bibliography characterised by some literary form such as lists of novels, dramas etc., bibliography characterised by some physical form such as lists of manuscripts, bibliography constructed with a common purpose such as lists of doctoral dissertations and so on. All these varieties of bibliographies are useful for some reason or other because they indicate the variety of the nature of intellectual activities they represent as well as the variety of form, physical or literary, in which they appear. But though the variety of bibliographies is almost infinite, for purely practical purposes their variations are not as great as they seem to be. Really speaking there is a workable number of types of bibliographies which are sufficient for most purposes.

Makers of Bibliographies

Though bibliography is regarded by many librarians as the exclusive province of librarianship, it was the scholars and subject specialists who had been the pioneers in the field. Librarians are in fact new comers to the field, though their service in organising bibliographies both nationally and internationally are of paramount importance to-day. But at the beginning they were almost entirely in the background. It was some individual scholars, some commercial publishers, some Professional associations and government institutions, various agencies having subject interests that were responsible for the production of some great bibliographies of the world. Librarians would not have ventured into the field had they

not been impelled by compelling circumstances. Bibliographies compiled by non-librarians might have been useful but they were not adequate as exclusive tools for the organization or service of the collection of works under a librarian's control nor could they be properly adapted to his collections. Moreover, they were often too numerous, too duplicative and too costly to be brought under control or they might have gap in their coverage or long delay in publication. It is for all these reasons that librarians had to enter into biblio-graphic activity and introduce gradually such improved techniques as classification, descriptive cataloguing, subject cataloguing etc., and also such forms as catalogues, shelf-lists and union catalogues.

Bibliographical Services and International Bibliographic Organization

Knowledge, it is now admitted on all hands, should not be an exclusive monopoly of a few individuals or of a race nor should it be confined within certain narrow national boundaries. As it is a universal possession, every one, whatever be his or her nationality, language, alphabet or territory should have a claim and if possible, also free access to it. This is possible only when bibliographies which are prime aids to knowledge are organized both nationally and internationally. Bibliographies, national and international, are, therefore, primarily intended to contribute to the efficiency and economy of studies in all fields of science, education and culture. They again are of two kinds : current and retrospective. A current bibliography lists the current publications of all kinds while a retros-pective bibliography is a comprehensive record of the written and printed materials of all kinds, of the past. Though the two together hold the field, it is often difficult to construct a complete bibliography on a certain subject owing to the lack of adequate records of the past.

So far as international bibliography is concerned one may, however, think that there must have been surely some international organiza-tions from very early times to organize bibliography internationally. This is by no means true. It is rather individuals and various voluntary organizations that have been the pioneers in the field and done much impressive work. Indeed the contribution of different bibliographically rich countries, various learned societies, professional groups and cultural institutions has been very great to the organi-zation of bibliography on an international plane. We may cite, for

instance, the notable service rendered by the Royal Society of London to the organisation of international bibliography. The term 'international bibliography' need not imply any surprise, for it is nothing but a list of all written or published records whatever be their place of production or location. The Royal Society of London brought out for the first time the *Catalogue of Scientific papers* and subsequently also the *International Catalogue of Scientific Literature*, the story of which extends from 1851 to 1925 and 1894 to 1935 respectively. Another laudable attempt was most successfully made in this direction by the Brussels Institute when it started bringing out a *Repertoire Bibliographique Universel*. This Institute better known as Institut International de Bibliographie is a standing monument to the bibliographic services rendered by two idealistic lawyers and politicians, Henri La Fontaine and Paul Otlet of whom the former was awarded the Nobel prize for peace in 1913. La Fontaine and Otlet entered into a life-long bibliographic partnership as early as 1892 and carried on their work further with the assistance and patronage of the Belgian Govt. At the initial stage the Institute was made up of individual members from several countries and it encouraged the compilation of current, complete national biblio-graphies in various countries in order that the compilation of its own *Repertoire Universel* might be facilitated. As an experiment in the direction of the organisation of international bibliography the importance of the services of the Institute is unquestionable. It not only made the concerned quarters feel the need of an international bibliographic organisation like this but also led the way to subsequent international bibliographic work. Though the *Repertoire* is still in tact, the activities of the Institute have miserably shrunken.

Soon after the first world war there were again some momentous developments in the work of international bibliographic organization. The setting up of the International Institute of Intellectual Co-operation in Paris was one such noteworthy event. Its aim was to encourage and co-ordinate intellectual co-operation in various ways through existing agencies. But instead of co-ordinating the activities of the existing bibliographic organizations in various countries for bringing out some comprehensive universal repertory it merely encouraged the production of good bibliographies, abstracting journals and the like.

Gradually librarians and the library profession, bibliographers

and documentalists became more and more attracted to this work and entered into the arena of co-operation. The International Federation of Library Associations which, in abbreviation, is known as IFLA came into being in 1929. Though its main business is to provide an international meeting ground for librarians, documentalists and bibliographers of different countries of the world as well as to promote co-operation in the field of library work, it has been contributing no less, though indirectly, to the international organization of bibliography as well. But far greater direct service in this regard has been rendered by another international organization namely The International Institute of Bibliography (I.I.B.) which since 1938 has been called the International Federation for Documentation or F.I D. It has certain special committees on classification in general and specific fields, bibliography and abstracting, copyright in connection with reproduction, information services, technical means of documentation, mechanical selection and training of documentalists.

But by far the greater service is being rendered to-day by the United Nations Educational, Scientific and Cultural Organisation universally known in short as UNESCO which is entirely a post-war development. Although other agencies of the United Nations also produce bibliographies, it is the sole concern of the UNESCO to deal with bibliographical problems and technique as well as standardisation and bibliographical services. The UNESCO has also achieved wonderful result by this time by coordinating and guiding, through its International Advisory Committee on Bibliography, the bibliographical work of individual countries and regions. The UNESCO is thus the latest international organization to venture into the field.

Problems Faced by the Organizers of International Bibliography

The world moves round four things : love, energy, material resources and information resources. If we look around us we observe gradual decrease of the first item, alarming shortage of the second and the third and an almost glut of the fourth. This fact of over supply of information leads the world to what is called bibliographic control. Modern man depends on the easy and quick access to information. But there is a hurdle. Unless the huge mass of world literature is brought under effective control through bibliographies, no one can expect to get fullest information on any

subject. Bibliographic control at international level implies effective control of the mass of world literature in all languages, in all forms and on all subjects through the development of required bibliographical tools.

But there are certain problems which act as obstacles to international bibliographic control. One of the constraints is the frightful abundance of literature on almost every subject in the world. Indeed books, periodicals and other forms of literature are coming out so largely through the printing presses that it is almost impossible to keep a track of them all and to harness them all. Secondly, there is the language problem. It is a paradox that language which happens to be the medium of communication stands in the way to transmitting knowledge and information. In the past most literature was published is some continental languages like English, German, French and Russian. But today books are produced in many more languages than one can learn and it is a great problem to the organizers of bibliographies. Hence translation seems to be the only solution. Though some works have already been translated, it is simply unthinkable to translate all materials in every language. Thirdly, there is the problem of the variety of forms. Not only linguistic barrier but also the various forms in which things are produced pose a serious problem. There are, for example standards, patents, microform, materials, phono records and films and many audiovisual aids and so on. To control all these forms within a single order is virtually impossible. Lastly, there is also the problem of accessibility of information which again is related to a number of sub-problems like

(a) Unpublished and restricted publications such as research reports.

(b) Publishing trade regulating publication of specialized books on financial ground.

(c) Rising cost of production preventing academic institutions like Universities, Research centres etc. from publishing specialised texts for a limited class of readers.

(d) Lack of cooperation between libraries to acquire, store and inter-lend materials.

(e) Popularity and huge sale sometimes lead to non-availability of the materials.

Now, bibliographic control has all these barriers to overcome.

Importance of international bibliographical control

If effected properly, bibliographical control makes it possible to

(i) identify a work on demand.
(ii) to discover location of an item on demand.
(iii) to arrange availability of the item through bibliographic organization.

Bibliographic control also implies the existence of effective scheme of cooperation between the libraries to acquire, store and inter-lend records of knowledge. It is also necessary that national information centres be established in all countries to bridge the gulf made by linguistic, physical, spatial and intellectual barriers and bibliographies and guides to sources be compiled to make the readers all over the world know one another's language and literature, history and tradition, scientific inventions and progress.

Bibliography and Accessibility to Materials

One of the principal objectives of modern librarianship is to provide the readers with the physical accessibility to the reading materials. The readers may be of any kind—general and advanced, laymen and specialists and the materials may be in any form—books and prints of all kinds viz., documents, pamphlets, maps, newspapers, periodicals and even films. Moreover, they may also be located in any part of the world. Hence until some relationship is established between the reader and the text, they will serve no fruitful purpose. It is however, possible to provide even immediate access to a material provided it is available in the library's own resources. But books and related graphic materials are so numerous to-day that one may say that there is almost an unhealthy excess of their growth and hence it is not possible for a library to procure and preserve all that incessantly flow from the printing presses. One may, however, argue that all this plethora of books and prints are never required for a library's constituency, for it has been found by experience that the number of books and prints in actual use in every type of library does not exceed certain quantitative limits, though these limits may vary from library to library according to their nature and function. But one should at the same time remember that while collecting books a library, particularly a research and special library, has also to consider the potential or probable use in future beyond its immediate actual use. Moreover, even though its immediate use is

negligible, a time is sure to come when the advanced scholars and specialists may virtually need access to all the literature available on their chosen subjects, whatever be their forms, language, cost and location. As regards accessibility to national resources the problem has of course been more or less solved in many advanced countries by the provision of the national union catalogue and the introduction of the inter-library loan services. But this alone cannot solve the whole problem. For there are books and graphic records even in other countries which have not yet come within any organized scheme. It is therefore, imperative that all the materials published on a given topic should be listed in an organized way so that the seekers of knowledge may not feel handicapped in their pursuit. That is to say, bibliographic coverage of any subject field should be broad enough to help the readers by indicating to them the existence of relevant literature. Not only that, it should also provide sufficient bibliographical data so that a reader may make his own decision with regard to his need for the original document. There is no denying the fact that the absence of such bibliographic information may land him into confusion and compel him to acquire, borrow or reproduce the materials many of which may in the long run prove to be irrelevant to his study. But whatever be the scope and coverage of a bibliography accessibility to the materials is the first concern of the scholars and researchers, for without it bibliography itself serves no useful purpose, though it is at the same time true that physical location of materials itself becomes difficult without a comprehensive bibliography. Hence in the interest of research and higher learning both bibliography and accessibility to materials should go hand in in hand. As they are two essential halves of a composite whole, neither of them is perfect without the other.

Accessibility to Materials and Photographic Reproduction

The problem of accessibility has been considerably eased off in the world to-day by the advent of Photography in the world of book production. We all know that the scholarly materials are never found accumulated in one place, but are lying scattered in different museums and art galleries, archives and libraries in different parts of the world. But should the mere accident of distance serve as deterrent to scholars and librarians ? The answer is an emphatic 'no' since they have already overcome this handicap by introducing one of the most modern techniques namely photographic reproduc-

tion for providing the readers with accessibility to all kinds of scholarly materials. Whether they are in manuscript form or in print, they are now filmed by cameras and thus made easily available to readers all over the world. All that is required for getting such photographic copies is to find out beforehand the precise location of the relevant original material. Readers may have a fancy for the original document, but when the document is so rare and so costly and at the same time when the distance is so great, it is surely better to read the photographic or microphotographic reproduction of the material than to do without it altogether.

Apart from such rare manuscripts and costly documents there are again a countless number of journals and periodicals containing thousands of articles absolutely useful and urgently needed on that account by scholars and researchers. The relevant bibliography if properly constructed, will surely include those titles, but mere reference to them is no panacea. As the library is not often financially competent to subscribe to all such journals and periodicals and as it is not possible for it to secure all of them locally it has got to secure their photographic reproduction either in microcards or in microprint or microfilm from where they are available. In fact thousands of periodical articles are thus being microfilmed everyday and sent to libraries, industrial organisations and even to individual readers all over the world. The importance of the application of Photography to newspaper articles from the point of view of accessibility is still greater. As the newspaper articles appear on short-lived newsprint, they are surely to be lost and hence completely inaccessible to the readers unless they are preserved by this process. Photographic reproduction thus offers a very useful service to both scholars and librarians. It not only helps the researchers and scholars to get more quickly and easily the photographically produced copies of some highly specialised materials normally inaccessible to them but also helps the librarians to replenish their resources more economically with the photocopies of some useful scholarly materials. It is, therefore, no wonder that microcards, microprints and microfilms in the Special and Research libraries now form a part of normal acquisition.

Role of UNESCO in Bibliographic Organization and Control

UNESCO was born as a subsidiary body of the United Nations Organization in 1945 to meet the challenge of international biblio-

graphic explosion. In the constitution of Unesco it is stated that on behalf of the member Governments the Organization shall maintain, increase and diffuse knowledge by encouraging cooperation among the nations in all branches of intellectual activity including the exchange of publications and other materials, national and international, by initiating the methods of international cooperation calculated to give the people of all countries access to the printed and published materials produced by any one of them. Accordingly the first task it undertook was the production of a Universal Bibliography. Theodore Besterman started its compilation but the project had to be abandoned in view of the ever increasing number of publications in different languages and on different subjects, increasing cost of compilation, inordinate time required for the purpose and paucity of resources to cope with the work.

Unesco then ventured on stimulating existing bibliographical services and coordinating them. The objectives of Unesco in bibliographic organization are

    (i)   to stimulate the activities of national and international organizations engaged in bibliographical work

    (ii)   to coordinate bibliographical activities of various countries and to encourage international bibliographic project

    (iii)   to act in cooperation with various international bodies like International Federation of Library Associations (IFLA), International Standards Organization (ISO), Federation of International Documentation (FID), International Council of Archives (ICA), International Council of Scientific Union (ICSU) etc.

An International Conference on Bibliography was held in Paris in 1950 for the consideration of the various aspects of bibliographical work, cooperation, organization and control and the Conference recommended the following :

    1.   Every country should have a national planning body

    (a)   to look after bibliographic planning of that country

    (b)   to develop bibliographical information services

    (c)   to undertake research in bibliographical method

    (d)   to find out the areas in which the country is weak and what special attention is required to strengthen them

    (e)   to coordinate bibliographical activities within the country and

    (f)   to act as an international link.

2. Every country should establish a national library which would acquire all materials published within the country by means of Compulsory Deposit Act and compile a national bibliography.

3. Every country should have a Bibliographic Documentation Centre which would be responsible for documentation, storage and retrieval of bibliographic information for the country. It would also ensure international library cooperation including inter-library loan. Moreover, it would be responsible for the production of Union list of various reading materials, bibliographies and guides to sources of information.

As a result of the recommendations of this International conference a committee was set up under UNESCO. The committee was named International Committee on Bibliography and later named International Advisory Committee on Bibliography, Documentation and terminology. The functions of this committee are

(i) to examine and resolve the problems in the areas of bibliographic cooperation

(ii) to examine and locate the areas where subject bibliographies are inadequate

(iii) to act as liaison between UNESCO and various national bodies undertaking bibliographic projects

(iv) to find out the area in which international cooperation in bibliography is necessary

(v) to act as a body for deriving necessary funds and technical assistance from UNESCO for those organizations which are carrying out the projects under UNESCO.

Activities of UNESCO

Apart from helping and encouraging bibliographical activities at national levels and promoting international bibliographic cooperation the UNESCO has brought out a series of bibliographical tools for the guidance of the international community of readers. It has been bringing out a bulletin entitled *Bibliography, Documentation and Terminology* in six languages : English, German, French, Spanish, Chinese and Rumanian containing reports on various bibliographical projects of UNESCO, and those of member nations and other international organizations. Besides, it has brought to light a number of publications like

(a) Bibliographical services throughout the world by Robert L. Collison

(b) National Bibliographical services : their creation and operation by Knud Larsen

(c) Bibliographical services throughout the World by Paul Avicenne

(d) Vocabularium Bibliothequari. The last one is a vocabulary or glossary of technical terms pertaining to bibliography, librarianship, publishing and printing. It includes 3000 technical terms relating to the above subjects in English, German, French, Russian and Spanish.

One of the major functions of UNESCO. in the field of bibliography is to publish need-based bibliographies. It brought out, for example, An International Bibliography of Social Sciences. It is issued in four parts : Part 1—Economics, Part 2—Political Science, Part 3—Social Anthropology and Part 4—Sociology. Each of these is an annual classified list of books, periodicals, pamphlets, periodical articles and official publications in various languages including those of Asia and Slavonic countries. To cope with the problems created by information explosion in the fields of science and technology UNESCO arranged three important working groups one in Philadelphia in 1962 for collecting scientific information and looking after scientific publications, another in Moscow in 1963 for automatic documentation, storage and retrieval and still another in Rome in 1964 for looking after scientific and technical vocabulary, translation and technology. It also issued a number of guides such as *World Guide to Scientific Information and Documentation Centres, A World Directory of Technical Information and Documentation Centres, A List of Annual Progress of Research in Science and Technology etc.*

To cope with the problem of languages UNESCO lays stress on producing vocabularies, thesauri and multi-lingual dictionaries. A World Guide to International Scientific and Technical Dictionaries is one of its great achievements. Then again, with financial aid from International Council of Scientific Union (ICSU) Unesco is now engaged in publishing Abstracts in Physics, Chemistry and Biology. It makes necessary arrangement for exchange of specialists in the field of scientific terminology, computer vocabulary etc. Though it has no documentation centre of its own, it has, however, established

15 documentation centres throughout the world through which it collects all information and gets documentation lists whenever necessary. Another notable contribution of Unesco was the revival of *Index Translationum* in 1948 which was originally sponsored by the International Institute of Intellectual Cooperation in 1932 but ceased to come out during the war years (1940-45). It is an annual publication listing the translations of books and other records with full bibliographical details of each. It covers the languages of most of the countries of the world (more than 71 countries) and is arranged by country under ten major headings of the UDC.

All these clearly show that the UNESCO has been playing a very important role in bibliographical organization and control. It not only stimulates and coordinates various bibliographical activities throughout the world but also renders some valuable services itself. It is also lending its helping hand to abstracting services. On the whole UNESCO has been making various efforts to bring the people of the world closer to one other, which are welcome to all nations. Thanks to UNESCO, serious readers and intellectuals feel no longer handicapped for lack of proper intellectual resources covering the whole world.

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INDEX

A

Abhijnana Sakuntalam, 339, 346, 349
Abhirama, 347
Academic of Eloquence, 1
Accessibility to materials, 454
Achalgadh-Jain Temples, 43
Acknowledgements 281
Acts and Monuments, 194
Acreopagitica, 20, 195
Aldo Manuzio, 186
Adolf of Nassau, 185
Aeschylus, 50
Aesop's Fable, 190
Ahab, King of Israel, 91
Ain-i-Akbari, 57, 201
Aichamoni, Ignatius, 197
Aitareya Brahmana, 109
Ajanta Caves, 46
Akkad, 48
Alberuni, 101
Alcuin of York, 52
Aldus, Manutius, 141, 186
Alexander Tilloch, 163
Alexandria, 30, 50
Alexandrian Library, 30, 50
Alost, 188
Alphabet, 99
— Birth of, 90
— Aramaic, 112
— Bulgarian, 97
— Greek, 94
— March of, 92
— Offshoots of Greek and Latin, 97
— Roman, (Latin), 96, 97
— Semitic, 106
— Serbian, 97
— Tibetan, 117
Altamira, 84
Ambalakad, 196-197
Amaravati, 56
American Book Publishing Record, 396
Amir Khausru, 56

Anagram, 306
Andrews' Press, Hooghly, 200
Angalipi, 116
Anhilavad Patan, 45
Annadamangal, 208
Annals of English Drama, 410
Announcement, 277
Antiquarian library, 31
Antique, 75
Antoine Verard, 187, 214
Antonio de Razario (Dome), 200
Antony, 51
Apocalypse of St. John, 129
Apocrypha, 343
Appendix, 285
Apte, 345
Aquatint, 227
Acquatone, 233
Arabic Numerals, 98-99
Aramaic, 107, 112
Aranyakas, 109
Aristophanes, 50
Aristotle, 49
Ars Memorandi, 129
Art paper, 75
Arthasastra of Kautilya, 101
Artist Lithography, 229
Ascham, Roger, 194
Asoka, 41
Asokan Inscription, 41
Assamese, 115
Assumpacne, Manuel de, 200
Assur, 48
Assurbanipal, 35, 48
Assyria, 21, 48
Assyrians, 91
Astadhyayi of Panini, 101
Athenian Academy, 50
Authoritative edition, 343
Augsberg, 185
Augustus, 57
Aurel Stein, 108

1) Book review
2) Copyright law in India 369-71
3) Binding materials 248-261 (374)
4) Sheet-work, forwarding & Finishing
5) Printing do 1st chapter.

This is an outstanding work on the subject highly by professional and literary journals both national It includes not only the theory and history of bibliogra its various ramifications. Written entirely from standpoint the book has already become highly popu India and abroad. The current edition contains apart fro topics elaborate treatment of international bibliographical services and bibliographic Organization and the role of UNESCO in both the fields. The chapter on Copyright containing international copyright laws and the copyright law in our country and their implications and effectiveness, the copyright laws vis-a-vis copy-right libraries is an additional attraction of the book. The scope of the book has been further widened in order to meet the total needs of even the postgraduate students in Library and Informa-tion Science of different Indian Universities. Like its predecessors this edition is also sure to be useful—nay, more useful and almost in-dispensable not only to students of Library and Information Science but also to Librarians and Library Science teachers of different Indian and foreign Universities. The students of Ancient Indian History and Culture, Comparative Philology and English Literature will also find some of the chapters of the book highly informative, interesting and useful. The book, on the whole, is the product of deep study and long standing experience of teaching of its author who has been teaching the subject in one of the premier Universi-ties of the country for more than 25 years and as a guest lecturer in another for some years and has been connected with different other Universities in various capacities inculding that of a visiting fellow. A veteran teacher of both Library Science and English Language and Literature the author has tried to make the book as comprehensive and communicative as possible. The book will be a rich edition to every library's collection.

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